



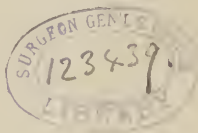


T H E
E C L E C T I C
P R A C T I C E O F M E D I C I N E.

BY

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PREFACE.

FOR some years I have been urgently solicited by members of my class and others to prepare a work on the Practice of Medicine. The constant labor incident to a large practice, lectures through eight months of the year, and contributions and Editorial supervision of the Eclectic Medical Journal, has hitherto seemed to present an insuperable obstacle to so doing. Even now, it has only been by a sacrifice of personal comfort, and to some extent of other engagements, that I have been enabled to gratify their desires. While this may account for many defects as a literary work, I will not offer it as an apology for the *matter*, which I have the egotism to believe will prove satisfactory to the reader. To render it as practical as possible, and a ready work of reference to the practitioner, I deemed it best to avoid all unnecessary description, and in many cases give what I believe to be facts, without adducing any reasons. If I had done otherwise it would have destroyed its usefulness as a *hand-book* to those for whom the work is intended. I have, also, deemed it best to group diseases, not according to their pathological character as is usual, but according to the organ or part affected, believing that in this way the study of diagnosis would be easier. In conclusion, I have confidence that the treatment laid down will in no case disappoint the reader, if carefully employed, as it has been the result of close investigation and extensive experience.

THE AUTHOR.

THE ECLECTIC PRACTICE OF MEDICINE.

CHAPTER I.

FEBRILE DISEASES.

FEVER is divided into two classes, *idiopathic* and *symptomatic*; in the first, there is no appreciable lesion of the solids, at least at its commencement, we therefore say that it is primarily a disease of the *fluids* of the body; in the second there is primarily an inflammation which induces febrile reaction, the fever being a secondary disease.

What change in the fluids of the body will give rise to fever? I know of but one, and that is the presence of some material that has so far lost its vitalization that it can not be applied to the nutrition of the textures, or serve any purpose in the animal economy. Such material may be generated within the body, or it may be introduced from without. In order to prove this proposition, I will describe next,

THE CAUSES OF FEVER.—1st. From great excitation or depression of the mind we may have such change in innervation as will induce the above named condition of the blood. We well know that the depressing emotions, of *fear*, *grief*, etc., occasion a slow and languid circulation of the blood, with more or less congestion, and arrest of secretion. If there is stasis of blood, that fluid is impaired in proportion to its continuance and extent, certain portions losing their vitality, thereby becoming material foreign to its constitution; arrest of secretion causes retention of the effete material of the secretions. Emotional excitement gives rise, first, to a rapid breaking down of the tissues, and second, by the subsequent prostration and consequent failure in the excreting organs, to the retention of this effete material. During febrile epidemics emotional

excitement very frequently proves the exciting cause of the disease. 2d. Suppression of the excretions will induce the same condition of the blood. The materials excreted from the body have undergone such change before excretion that they can no longer subserve any purpose in the animal economy, and therefore if retained by failure of the excretory organs to remove them must prove a cause of disease. 3d. Causes inducing congestion. As before remarked, if there is congestion of blood, a retrograde metamorphosis ensues, in which certain portions are so devitalized that they are unfitted for the purposes of the economy, becoming in fact elements foreign to the blood. 4th. Morbid material introduced into the blood from without; as gaseous exhalations from decomposing animal or vegetable matter, which gains entrance into the circulation through the lungs; or decomposing animal matter, which may be absorbed from the skin, mucous membranes, etc.

WHAT IS THE NATURE OF THIS MATERIES MORBI?—I would define it to be any substance of lower organization than the blood—an organized body which is undergoing retrograde metamorphosis, and which will act as a diastase in the blood, effecting a similar destruction in every molecule of the blood that has not sufficient vital power to resist this change. Liebig compares the action of such material within the blood, to diastase, or yeast, having the property of inducing the same state of decomposition in all organized bodies with which they may be brought in contact.

If this is so, when such material is generated within the blood or introduced into it from without, there would be continued increase in its quantity. It would effect every portion of the system; nutrition could not be perfectly performed, because the quality of the nutritive material is impaired; innervation is affected, not only from the want of a properly constituted nutritive material, but also from the lack of the normal stimulus furnished by properly elaborated blood in the commencement, and by a greatly increased stimulation when reaction takes place, for the removal of the offending substance; the secretions are vitiated, from the vitiated material in circulation, and we would thus have impaired digestion.

A very good example of the action of a blood poison, is afforded us by inoculation for the small pox. The smallest quantity of virus, if placed where it can be readily taken into the blood, is as potent as a larger one. At first there is

no disturbance of the system, the quantity of the poison being too small. But it increases day by day, and in time a gradually increasing depression, manifested by listlessness, languor, loss of appetite, morbid innervation, and arrest of secretion. Finally the depression becomes so great that there does not seem to be power enough in the system to circulate the blood, the result being a chill of variable duration. If this continues, vitality will be destroyed, hence in a longer or shorter time we find the energies of the system concentrated to overcome it; the result being *febrile reaction*, which ceases only when the material introduced has been entirely removed. In this case it is principally thrown upon the surface as a pustular eruption, but we notice that the poison has been wonderfully increased, as each pustule contains possibly a hundred or a thousand times the quantity introduced. This virus has been produced from the blood by the action of the original minute portion on the blood.

As another instance, take a person who has been exerting himself more than usual, this exertion has caused a greatly increased disintegration of tissue, which partially disorganized material remains in the blood. The exertion has been attended with increased excretion from the kidneys and skin, the last being especially manifest by the free perspiration. At this time the person ceases his exertion, and sits down in a damp place, or in a draught of cold air, the effect being to stop the secretion from the skin, and the material that would have been thus removed, is retained within the circulation. Not only so, but the blood is driven from the surface to internal parts of the body, embarrassing the action of the internal excretory organs. Now, if vicarious excretion does not occur from the kidneys or intestines, the result will be fever, or inflammation of some structure of the body accompanied by it. What are the phenomena that follow? There is first a torpor of all the functions of the system, followed by a chill or rigor, and this by febrile reaction, which terminates only when free secretion is established.

Dr. Stevens well remarks, "that it is but a poor objection to say that neither the contagious poisons nor the marsh miasma can be detected in the blood by any chemical test. Those agents, like the vital principle or caloric, are invisible; but like vitality, or the cause of heat, the aerial poisons produce the most visible effects. Whatever the origin of these agents

may be, it is now, I believe, generally admitted that poisons often exist in the atmosphere, acting as the remote cause of fever; and if chemists do not yet possess any test to enable us to detect them in so simple a fluid as atmospheric air, we can scarcely expect to find them in one that is so complicated as the blood. When chemistry can detect them in the one, the same test may enable us to prove their existence in the other; until then, we may believe they exist in the blood, not only from the visible effects they produce in that fluid, but from the same evidence that we believe in their atmospheric existence, that is from their effects; for, as yet, we have nothing else to enable us to prove that these poisons ever exist as the remote cause of those fevers which we believe to be produced by the aerial poisons. But when the air produces in those that breathe it, a specific fever, with a cold stage, an irritable stomach, a foul tongue, derangement in the biliary organs, disordered secretions and the other symptoms of contagious or miasmatic fevers, we then believe that such air contains a poison. For the same reason, when the poison enters the system unperceived, and without producing any immediate effect on the nervous system—when it remains dormant for days in the body without producing any change, except in the blood—when we see that the whole current is dark in color, and diseased in its appearance, even before the attack, when this diseased blood first paralyzes the heart and then produces fever, with an irritable stomach, a foul tongue, and the other specific symptoms peculiar to this class of fevers, we may then on the same evidence, believe that the poison has entered the circulation, and that this is the cause; while the paralysis, the reaction, and the other symptoms which occur in the solids are merely the effects of the disordered state of the nutritive fluid.”

PHENOMENA OF FEVER.—A fever is composed of four stages; 1st, a stage of *incubation*, of variable duration; 2d, a cold stage; 3d, a hot stage; and 4th, a stage of excretion, or as it is commonly termed the sweating stage. These follow one another in the order they are named, and each one may be considered as the natural sequence of the one that preceded it.

STAGE OF INCUBATION.—The symptoms are, languor, listlessness, deficient circulation of blood as is marked by the coldness of the extremities and dryness of the skin, arrest of the excretions in a more or less marked degree, perversion or loss of appetite, feeble digestion, more or less pain in back or head, and rest-

lesness at night. These symptoms gradually increase until the next stage is ushered in. It will be noticed that these are just the effects described as resulting from the presence of a morbid material in the blood, and we further prove it by adducing as examples the eruptive fevers, and effects following dissecting wounds, or other absorption of decomposing animal material, in which these symptoms are invariably produced.

COLD STAGE.—With the continued increase of the morbid material in the blood, we have such depression of the nervous system, that there is no longer power to circulate the blood; congestion of parts near the center of circulation ensues, there is deficient oxygenation and capillary circulation in the skin, the result being constriction, coldness and involuntary motion. If vital force is so depressed that reaction can not take place, these effects increase and the patient dies in the second stage of fever, as we sometimes witness in congestive intermittents.

HOT STAGE.—We recognize in organized beings a certain conservative power which opposes the operation of noxious agents and labors to expel them when they are introduced. During the preceeding stages this power has been in abeyance, but now in order to prevent dissolution, it is concentrated to circulate the blood. The result is increased action of the heart and lungs, giving rise to the frequent pulse, return of capillary circulation to the surface, increased oxygenation, and consequent increase of temperature. The rapid circulation and oxygenation of the blood causes excitation of the nervous system; the concentration of the *vis conservatrix* to the circulation of the blood, in addition to the other effects named, accounts rationally for the arrest of secretion.

STAGE OF EXCRETION.—If the hot stage has been proportionate to the others, equal circulation throughout the body having been established, and the deleterious material fitted for excretion, it terminates by the establishment of secretion from the skin, kidneys and bowels, and consequent return to health. It may take hours or days for the accomplishment of this end, but if the patient recovers it is accomplished. In intermittent fevers we may suppose that the stage of excretion is not completed, that the blood is not entirely freed from the cause of disease; in such case after a certain length of time, we would have such increased generation of the morbid material as to reproduce the fever. In remittent fevers, the object being but

partially accomplished by one revolution of the disease, there is but remission in the febrile reaction.

COMPLICATIONS.—Owing to these marked changes in the circulation of the blood, we are surprised, not that local disease should ensue, but that its occurrence is so unfrequent. The stasis of blood in internal organs, impairs their functions and may lead to change of structure, while its rapidity and increased momentum in the hot stage, may, owing to the condition of the parts in the previous stage, occasion inflammation. The three first stages of fever are incompatible with the normal performance of the functions of the body.

DIVISION OF IDIOPATHIC FEVER.—We may divide fever primarily into the two classes *periodic* and *continued*. The first is marked by distinct exacerbations and remissions, each occupying a certain amount of time and recurring with great regularity. In the second, we have but one revolution of the fever, the *hot stage* being continuous for days or weeks until the disease terminates in a stage of excretion and return to health, or in death. Periodic fevers we sub-divide into intermittent and remittent; in the first the fever having made one revolution, entirely ceases for a time, to again reappear in all its stages; in the second we have but one cold stage, but the hot stage which succeeds it is marked by distinct intermissions of tolerably regular recurrence. Continued fever is subdivided into *synocha* or *sthenic fever*, *synochus* or *common continued fever*, *typhoid* a fever with marked depression of vital power and depravation of the blood, and *typhus*, a fever arising from animal infection, and characterized by a specific eruption.

To these divisions we would add the *exanthematous* fevers which are produced by the absorption of a specific virus, which reproduces itself in the blood, and is finally determined to the skin.

INTERMITTENT FEVER.

CAUSES.—A majority of the profession concur in saying that intermittent fever is produced by the absorption of the gaseous exhalations of decomposing vegetable matter or *marsh miasmata*. In proof of this position it is shown that this form of fever is endemic in those sections where vegetation is profuse, and the conditions necessary for rapid decomposition generally exist, and that in other sections where these conditions do

not exist, it is not found. It is farther proven by the fact that in those sections where it is endemic, if the season is remarkably wet or dry, so as to prevent vegetable decomposition, there is during such season but few if any cases of the disease. Any cause which will depress the vital power of the system, will predispose the patient to the action of this malarial poison.

GENERAL DESCRIPTION.—Intermittent fever might be considered as a succession of fevers occurring at regular periods with an interval of health between each. From the beginning of one of these to the commencement of the next, is termed a *revolution* of the disease, which comprises a *forming, cold, hot, and sweating* stage, and the period of intermission. The *type* of the disease has reference to the length of these revolutions; of these there are three principal and two minor—1st. Where the disease makes a revolution in twenty-four hours it is termed a *quotidian*, the fever recurring every day. 2d. The revolution occupying 48 hours it is said to be of the *tertian* type, the fever recurring every other day. 3d. Requiring 72 hours for a revolution, it is termed a *quartan*. 4th. There may be two revolutions in 24 hours, when it is said to be a *double quotidian*; and 5th. The disease recurring every day, but at different hours each day, the fever is called a *double tertian*: this distinction is made because experience has shown that one of the paroxysms of fever may be arrested and yet the other will continue as a simple tertian.

In some cases the fever continually recurs at an earlier hour in the day, it is then termed *anticipating ague*; in others it comes on later, and is called *deferring*; and in others there being no regularity in its recurrence it is named *erratic*.

SIMPLE INTERMITTENT FEVER.

SYMPTOMS.—Frequently, for some days preceding the manifestation of the disease, the patient complains of *listlessness, languor*, indisposition to exercise, more or less derangement of the appetite and digestion, and torpor of the excretory organs; we call this the *forming stage*. The *cold stage* is ushered in by a desire to yawn and stretch, sense of chilliness, desire to draw to the fire, more or less pain in the back, sometimes in the head, with increased thirst; chilliness increases, with trembling of the muscles, rigors and chattering of teeth; the pulse becomes excited, small and increased in frequency; capillary circulation

of the surface is diminished; purplish appearance of nails; skin of the extremities loses its natural healthy glow and color; fingers become smaller, so that rings drop off; countenance shrunk-en, lips blue or livid, with general contraction of skin, and protrusion of hair-bulbs giving that roughened appearance denominated *cutis anserina*; respiration is labored; tongue usually pale with slight whitish coat, dryness of mouth and insatiable thirst. In some cases there are no rigors—chilly sensations pass up and down the back and radiate over the body; at last they are alternated with flushes of heat, which continue to become more intense until the hot stage is fully ushered in. Sometimes there is irritation of the stomach, with nausea and vomiting. This stage of the disease may last from a few minutes to four or five hours.

THE STAGE OF REACTION OR HOT STAGE is generally in inverse proportion to the chill, if it has been severe and long continued, febrile reaction is generally slight; if it is light and of short duration, febrile reaction is high. The sensation of coldness gradually disappears, respiration becomes free and regular, the pulse increases in strength, and is full, open, and less frequent, the skin becomes warm and capillary circulation free. Reaction does not stop here, but in a short time we find the temperature of the surface considerably increased, sometimes as much as 10° ; the pulse increases in frequency to 100 or even 120 beats per minute, and is more open, full and bounding than in health, with more or less excitation of the nervous system, sometimes amounting to delirium. The secretions are all diminished—the mouth is dry and husky, tongue parched and cracked, sometimes coated with a white or yellowish fur and at others red, the skin is dry, harsh and constricted, urine scanty and high colored and does not deposit a sediment on cooling, and generally constipation of the bowels. This stage is of variable duration, from one or two, to twenty or twenty-four hours.

As the SWEATING STAGE is ushered in, all the symptoms become ameliorated—the skin becomes soft, moist and natural, with sometimes profuse perspiration. The urinary secretion is increased in quantity, is less highly colored, and deposits a sediment. The pulse becomes natural, the heat has disappeared, and the patient enjoys comparative health.

As will be seen, the *diagnosis* is readily made after the dis-

ease has made one revolution, and the *prognosis* is always favorable.

TREATMENT.—Our treatment is first directed to arrest the disease, and second to prevent its return. The disease may be arrested, or in common parlance the *ague broken*, in several ways, but the means in most frequent use is the employment of certain agents, termed *antiperiodics* which are used during the intermission. Of these the chief and most reliable are the different preparations of Cinchona bark. Quinia Sulphas is a most reliable agent. I employ it in combination with the Prussiate of iron which I think gives additional efficacy, as *R.* Quinine, gr. xv., Prussiate of Iron, gr. x., divide in three powders and give one every three hours during the intermission, so that the last powder shall be taken one hour before the expected return of the fever. The proportions named may be considered the medium quantity to prevent the recurrence of the paroxysm, but will have to be increased or diminished according to the condition of the patient. If it does not succeed the first time, repeat with increase of dose if there is nothing to contraindicate. This remedy having a nauseous taste, we find it necessary for the comfort of our patient, and many times essential to prevent its speedy ejection by the stomach, to disguise it. A strong infusion of cold, green tea, is a very good vehicle for its administration, as is also a weak solution of tannic acid, much of the bitterness being lost in both cases; or the remedy may be enveloped in *gelatin capsules* or it may be combined with an acid, as *R.* Quinia 3j., Aromatic Sulphuric Acid, f3j., dose 3j., every two or three hours until the necessary amount is administered, or given in pills, as *R.* Gelsemin, gr. v; Quinia Sulphas, 3j; Ferri-ferrocyanuretum, gr. xx; Ext. Piper Nigrum q. s.; make fifteen pills and give one every hour.

We find cases occasionally in which this remedy will not be received by the stomach at all; these are most generally persons of a delicate, nervous habit; here it may be used by enema or inunction, I prefer the latter. *R.* Quinia Sulphas 3j; Adeps, 3ij., mix; to be thoroughly rubbed into the axilla, groins, etc.; this is especially a good way to use the agent in diseases of children.

There are some cases in which from idiosyncrasy of the patient the quinia produces severe excitation of the nervous centres, as is marked by headache, ringing in the ears, great

irritability, or in rare cases torpor of the entire system. In many of these, the reason of this will be found in some derangement of the stomach, which should be corrected, but in others we have to substitute other agents. *Cinchonæ Sulphas* and *Quinidine* may be substituted for quinia in almost all cases except the last named, but they are not so efficient; they are given in the same manner, medium quantity for arrest of disease, gr. xx. The *Cerasine* and *Prunine* may be used advantageously in many cases, especially in the exceptional ones named. Medium quantity for arrest of disease, gr. xx, in three or four doses. The *Salicine*, *Cornine*, *Piperine*, etc., have been used, but are inferior agents. The *Enonymus Atropurpureus* or *Wahoo*, taken in infusion has proven quite an efficient agent, and may be advantageously employed with the other remedies named.

Intermittent fever may be arrested without the use of the class of agents named; thus, a thorough emetic of *Comp. Powder of Lobelia and Capsicum*, given so that its action will be fully established at the expected time for the chill, will almost invariably prevent its recurrence that day; as will, also, the employment of the spirit-vapor bath with diaphoretics; or, in some cases, the use of the wet-sheet pack. The *Extract of Juglans Cinerea*, given in full cathartic doses, will also arrest the disease. This treatment, with the constant use of means to keep the excretions free, and bitter tonics to improve the quantity and quality of the blood, will effect a permanent cure.

There are some cases, in which there being great torpor of the bowels, it is necessary to precede the antiperiodics with a cathartic; *Podophyllin* and *Leptandrin*, well triturated, are efficient agents. In other cases, there being a slow and languid circulation, with general torpor of the excretory organs and especially of the stomach, an emetic will prove advantageous.

In order to prevent a return of the disease it will be necessary to continue the antiperiodics, in smaller doses, for two or three days after the fever has been arrested, and it is well to repeat them every seventh day for three or four weeks. The excretions should be kept free—that from the skin by an occasional bath; that from the kidneys by the use of the saline diuretics, say of *Acetate or Citrate of Potassa*, ℞j to 3ss, twice a day, with the occasional use of a mild cathartic if the bowels should be constipated. The employment of some bitter tonic,

with a soluble preparation of iron, should be continued until the appetite and digestive power is restored, and there is a complete return to health.

INFLAMMATORY INTERMITTENT FEVER.

The term inflammatory is employed here to denote a high grade of febrile action, and not the presence of inflammation, though this form of intermittent is probably more frequently complicated with inflammation than either of the others. This fever occurs more frequently in winter and spring than in autumn. The additional symptoms that characterize the disease are: a less marked cold stage, a much more violent febrile reaction, with great excitation of the nervous system, frequently delirium, and more marked arrest of the secretions. We notice during the hot stage, which is of longer duration, that the skin is dry, hot, and constricted; urinary secretion very scanty and high colored; bowels obstinately constipated; the mouth dry, tongue coated white, and a hard resilient pulse.

The most marked difference, however, is in the sweating stage, which is incomplete, and in the intermission, which is not perfect; the pulse still retaining an unnatural hardness, the skin being dry, urinary secretion still scanty, considerable thirst, with marked irritability of the nervous system.

ADDITIONAL TREATMENT.—As will be noticed by examining the above symptoms, the indications are, to lessen the force and frequency of the heart's action, relax the system, and promote a normal stage of excretion; and, in many cases, these will have to be fulfilled before antiperiodics can be used with advantage. If we see the patient during the hot stage, the administration of sedatives and the frequent use of the alkaline bath (cold) or the wet-sheet pack will lessen the fever, shorten its duration, and favor more perfect secretion. Of the direct sedatives, the *Veratrum Viride* and *Aconite* are the best. I frequently administer them together, as *R. Tinct. Veratrum, f3j; Tinct. Aconite, f3ss; Water, f3vj; mix*, and give the patient a teaspoonful every half hour or hour until the pulse becomes normal in frequency and its hardness disappears, then continue in smaller doses to keep up the effect until the disease is permanently arrested. If secretion is not established with these means, as soon as the pulse is reduced follow

with some diaphoretic infusion and the saline diuretics, keeping the bowels in a soluble condition and using the alkaline bath. The nauseant emetics may be used to produce sedation; for instance: *R. Aselepias Tuberosa*, *Eupatorium Perfoliatum*, $\bar{a}\bar{a}$ 3j; *Sanguinaria Canadensis*, 3ij; Nitrate of Potassa, 3ij; mix: during the fever give in doses of gr. xx every two hours, with Tinet. Gelseminum sufficient to produce its specific effect, and when the fever begins to disappear increase the dose of the first until free secretion is established. After fulfilling these indications the antiperiodics will invariably prove successful.

GASTRIC INTERMITTENT FEVER.

This variety is characterized by predominant disease of the gastro-intestinal mucous membrane and associated viscera. We notice two conditions especially:

First—The tongue is broad and flabby, or broad and thickened, pale, and more or less heavily coated at base with a yellowish dirty mucus, with a bad taste in the mouth and frequent sensation of nausea. The appetite is impaired, digestion feeble, bowels constipated, with clay-colored evacuations when moved; the skin is sallow, flabby or puffy, with coldness of extremities; the urine is normal in quantity, but pale, turbid, frothy, and of low specific gravity; the patient has no desire for exercise, feels torpid, and has frequently a dull, heavy headache. The *cold stage* is generally marked, and of long duration; *reaction* is not very high but frequently protracted, occasioning much suffering. In many cases there is nausea, with ineffectual attempts to vomit, in both stages.

Second—There is much gastro-intestinal irritation; the tongue is somewhat contracted and pointed, coated in center, and edges reddened; there is frequently a bitter taste in the mouth with sense of nausea, and tenderness on pressure over the epigastrium. The skin is constricted and wears a jaundiced appearance; the bowels but slightly constipated, with sometimes alternations of diarrhea, when the disease is of long duration, and the urine is frequently colored with bile during the cold and hot stage. Febrile reaction is generally high and attended by more or less delirium.

In both cases, if the disease is of long duration, the patient becomes cachectic; there is frequently enlargement of the spleen or *ague-cake*, disease of liver, dyspepsia, and much

irregularity of the bowels even after the fever has been arrested.

ADDITIONAL TREATMENT.—In either of these cases it is of but little avail to use antiperiodics until we have at least partially removed the complication. In the first case, the treatment should be commenced by the administration of a prompt and thorough emetic, which may be repeated every second or third day, until it overcomes the torpor of the stomach and checks the too abundant secretion of mucus. To overcome the torpidity of the liver and bowels, small doses of Podophyllin and Leptandrin or infusion of Leptandra or Podophyllum are efficient. To assist in overcoming the condition of the bowels named, and to get normal secretion of urine, I employ Acetate of Potassa in doses of from ʒj to 3j, three times a day. Especial attention should be paid to the skin by the frequent use of a tonic and stimulant bath: an infusion of equal parts of Hydrastis and Quercus Alba, with the addition of Alcohol or Tinct. Capsicum, answers a very good purpose.

In the second case we wish to first arrest irritation of the stomach, bowels, and liver. For this purpose counter-irritation over the epigastrium and right hypochondrium is important; the frequent application of a sinapism answers in recent cases, but when of long duration I use the irritating plaster. In the use of the last named means, it is not necessary in a majority of cases to produce suppuration; apply it until it raises a small crop of pustules, then remove it and reapply in twenty-four or forty-eight hours when the irritation has disappeared. Internally, an infusion of *Peach-tree Bark* and *Dioscorea* equal parts, followed by Hydrastis, is very effectual; if there is much irritation of the liver with hypersecretion, small doses of Leptandrin and Opium or other agents of a similar character are indicated. The saline diuretics will be found very important agents in this case, given in small doses, as will also the special sedatives.

Frequently an irritation of the gastro-intestinal mucous membrane will be continued by retention of acrid fæces, the bowels not being thoroughly evacuated, even though the patient is suffering with diarrhœa. Where such is the case, a mild but thorough cathartic is important. If the irritation of the bowels is great, with colicky pain preceding and attending the discharges, the free use of demulcents, with demulcent and narcotic enemas, are sometimes beneficial. Again, there are

eases in which it is impossible to check the irritation by any of the means named, in which we resort to an emetic, repeated as often as may seem necessary, using such measures as will thoroughly arouse the secretions.

In this form of the disease as in others, we depend upon the antiperiodics to arrest the paroxysms, and yet there are very many cases in which their influence is but temporary. For a radical cure, we must in addition use such means as will stimulate and keep up secretion from the skin, kidneys, and bowels, and restore tone to the entire system.

MASKED INTERMITTENT.

The name, Masked Intermittent, is applied to those diseases which, while presenting but few or none of the symptoms of fever, are yet distinctly periodic in their nature. Almost every disease known may have a periodic complication and require a treatment adapted to intermittent fever.

Periodic Neuralgia is, perhaps, the most frequent of the masked agues. We find a patient with a severe headache or pain in the face, which occurs regularly every day or every second, third, or fourth day, or is sometimes erratic in its recurrence. It resists the common means of cure, but readily yields to quinia and iron. The rule is, *that any disease, no matter what its location or character, that is distinctly periodic in its recurrence, should be treated with antiperiodics.* Even when, as in inflammation, they do not arrest the disease, the removal of this periodic complication so modifies it that it readily yields to other treatment.

CONGESTIVE INTERMITTENT.

CONGESTIVE CHILL.

SYMPTOMS.—There is considerable discrepancy among writers in regard to the symptoms of this disease. I will describe it as I have seen it, and from descriptions sent me from physicians in the South West. In some cases, the congestive chill is preceded by one or more paroxysms of simple intermittent fever; in others, the first chill presents marked evidence of congestion.

In *mild* cases, the cold stage at first presents no unusual symptoms: but in an hour or two we notice that the temperature of

the surface is markedly diminished; the prostration of strength is unusual; the patient is lethargic, and sensibility greatly diminished; he complains of giddiness, heaviness, pain, and sense of weight in his head; all the functions of the body are more or less impeded. In some cases the symptoms are extremely severe, in others there is nothing but a sense of deathly coldness. The skin at first contracted becomes relaxed, and frequently covered with a clammy perspiration. The pulse at first increased or normal in frequency, becomes slow, 50 or 60 beats per minute, and is weakened and oppressed. This stage continues from four or five to twelve or more hours.

Reaction comes up slowly, flushes of heat pass over the body, sensibility increases, the mind is less confused, the pulse increases in frequency and strength, but is still labored, and the surface gradually becomes warm. Finally the secretions become partially established and the paroxysm is at an end. In some cases marked febrile reaction with delirium, succeeds the cold stage, but this is rare.

In *some cases* the symptoms named in the *cold stage* are all aggravated. From the first there is a peculiar besotted expression of the countenance, and the patient is undecided and careless as to the result. There is also marked loss of strength, and inability to command the voluntary muscles, so that if he attempts to walk he staggers like a drunken man. The coldness gradually increases until it becomes extreme; sometimes there are severe rigors, at others none. The pulse is almost invariably slow, feeble and oppressed. The tongue is broad, flabby, and protruded with difficulty; sometimes nausea and vomiting in the early stage; frequently a disagreeable sense of tension in the epigastric region; the respiration is short and weak, and the patient frequently complains of great oppression in the præcordial region.

As the disease advances, the confusion of the intellect increases; coma comes on; the patient lies upon his back with tendency to slip down to the foot of the bed; breathing is more difficult; pulse small, weak and fluttering, or is intermittent, trickling under the finger like drops of water, and at last can not be felt at the extremities; a cold clammy perspiration, sometimes foetid, covers the body; the face assumes a leaden hue; the lips are contracted over the teeth, and the patient dies, reaction not having taken place.

In some cases a sero-sanguineous diarrhœa occurs; in others

there is colliquative hemorrhage from various parts, with petechia. Occasionally there is nausea and vomiting, at last of dark, grumous, broken down blood; sometimes there are convulsions.

DIAGNOSIS.—The diagnosis of a severe case of congestive intermittent is easy even at the commencement. The torpor of the nervous system, loss of voluntary motion, and slowness and oppression of the pulse are sufficient symptoms.

POST-MORTEM EXAMINATION.—Evidences of congestion of internal organs is very apparent. The vessels are engorged with dark blood, sometimes very much broken down. The digestive mucous surfaces are frequently altered; often softened and injected with dark blood in patches or spots. The lungs, liver and spleen are frequently found congested; the two last being sometimes considerably enlarged.

PROGNOSIS.—In severe cases it is thought that not more than one per cent would recover unaided, still if proper means are employed before the congestion becomes extreme, the prognosis may be considered favorable.

TREATMENT.—The first indication in the treatment of the disease is to effect reaction, which is accomplished by the employment of general and local stimulants, and means to overcome the extreme prostration of the nervous system. The second, to prevent the recurrence of the attack.

To fulfill the first, energetic means must be adopted—such as will overcome the congestion and promote the general circulation. To determine the circulation to the surface, Mustard friction, or a sponge bath of diluted Tincture of Capsicum, or other stimulants, with brisk friction with the hands, will be sufficient in mild cases. When the attack is severe, however, I direct a kettle of water to be put on the fire, and add of Mustard or Capsicum a sufficient quantity to render it strongly stimulating, then when hot, wring a blanket out of it, applying it to the patient, covering him warmly, and applying bottles of hot water, hot brick or irons, or any thing that can be obtained that will retain heat, to all parts of the body. Or instead, a tub of water may be heated, Capsicum and Mustard added, and the patient placed over it so that the vapor will reach every portion of his body; then placing in the water hot stones, bricks or iron, the hot vapor will be made to envelop the entire surface, and will be a most efficient means of stimulation.

If there is nausea, with weight and tension at the epigastrium, a stimulating emetic should be immediately administered: equal parts of Compound Powder of Lobelia and Capsicum, and Mustard, answer a very good purpose. If this is not necessary, we administer first, a strong topical stimulant to warm the stomach and promote circulation in it; as the Compound Tincture of Cajeput in teaspoonful doses every five or ten minutes, or a strong infusion of Capsicum or its tincture, until a sensation of warmth is felt in the stomach. In many cases the patient's life depends upon these means, for the stomach is so torpid and its circulation so sluggish, that without them, no absorption of any remedy will take place. Thus in a *post-mortem* examination of a case of congestive intermittent, made by me, nearly the entire amount of Quinia taken, was found in the stomach and duodenum.

The means named, though of the highest importance, are only preparatory for the remedy upon which we place the greatest reliance. In fifteen or thirty minutes, or at farthest an hour, we will find that the internal stimulants are having their effect, when we commence the employment of Quinia. The dose of this agent depends upon the severity of the case; when mild, gr. x, repeated every hour or two, until reaction ensues, will be sufficient; the greater the prostration and torpor, the larger should be the dose, until in extremely severe cases it has been administered in ʒj doses every hour with the happiest effects. I have administered in one case, ʒss in four hours, without the slightest injurious effect. The general stimulant should be continued in smaller doses during the administration of the Quinia.

After reaction is established, we use means to restore all the secretions, and here I do not wish to be understood as recommending means that greatly stimulate the excretory organs, because such stimulation almost invariably results in prostration and an arrest of secretion. Remedies that act mildly are the ones required. Then administer the requisite quantity of antiperiodics, (Quinia is the only agent that can be depended upon in this case,) to prevent a recurrence of the attack. The quantity of Quinia, as a general rule, will have to be larger than in simple intermittent, say from gr. xx. to ʒss. during the intermissions. It is a good plan to put the patient upon the use of the Extract of Nux Vomica, in doses of about one-sixth

of a grain every four hours, after reaction is established, especially if the circulation is feeble.

REMITTENT FEVER.

BILIOUS FEVER.

Remittent Fever, differs from the Intermittent, in that it consists of but one perfect revolution of the disease, the hot stage being greatly prolonged, but exhibiting well marked remissions and exacerbations. Like intermittent fever, it is supposed to be caused by what is generally termed marsh malaria, though there is no doubt but that sudden atmospheric vicissitudes and changes of temperature, by arresting secretion, impairing nutrition, and lessening the vital power of the individual, may form a cause of the disease. It occurs principally in the fall, though many cases are seen through the summer, and even during the entire year. It also differs much in its character, being mild in high and temperate regions, and severe in low, marshy, and warm countries.

SYMPTOMS.—The *forming stage* usually occupies some days, the symptoms being gradually developed. At first, there is nothing but a feeling of weariness, especially upon slight exertion. This languor increases, and is accompanied with listlessness, or indisposition to make any exertion; the appetite becomes capricious, with a bad or bitter taste in the mouth; tendency to nausea, with, sometimes, vomiting; the bowels are costive, and skin dry, and more or less pain and heaviness in the head, with, frequently, pain in the back and limbs.

COLD STAGE.—The attack is sometimes ushered in by a well marked chill or rigor, closely resembling the cold stage of an intermittent. Frequently the chill is very slight, and again, merely a sense of coldness; or slight chilly sensations pass over the body, which after a short time are succeeded by flushes of heat, these alternate, the chills becoming less and less marked, until, finally, febrile reaction is set up. In some cases, especially those in which the chill is marked, nausea comes on, and finally, vomiting, about the time reaction sets in. Sometimes there is some pain in the back and limbs during this stage of the disease. The cold stage usually lasts but a short time, one or two hours, but is occasionally protracted.

HOT STAGE.—When reaction ensues, the pain in the back, head, and limbs, increases, being in some cases extremely severe.

The temperature of the surface is markedly increased, the skin being dry and constricted, the face flushed and turgid, and the eyes red and suffused. The pulse is full and frequent, rarely tense, and the respiration hurried and uneven. The tongue is covered with a yellowish-white fur, with, frequently, a disagreeable taste in the mouth, and more or less nausea, with oppression and pain in the epigastrium, and in many cases, severe and protracted vomiting of bilious matter. All the secretions are checked—the bowels costive, and the urine scanty and high colored, sometimes loaded with bile which gives it a yellow tinge. The nervous system in many cases, is considerably deranged, the patient being watchful and very restless. There is rarely delirium in the first exacerbations, more frequently a marked dullness and torpor.

These symptoms continue from eight to twenty hours, when they gradually pass off; the heat of the surface is diminished, with frequently slight perspiration about the neck and face; the pulse is not so frequent, the pain in head and back ceases, and the patient feels comparatively comfortable and sometimes takes a refreshing sleep. This constitutes the period of *remission* which in a majority of cases occurs once in twenty-four hours, usually in the morning, though in some there is two per day, in others, a more complete remission occurs every second or third day.

This remission varies greatly in its duration and completeness in different cases, in some it is long and amounts almost to an intermission, in others, it is short and the febrile symptoms but slightly abated. Following it, the febrile symptoms reappear with all their first intensity, and the hot stage continues to the end of the disease, in a succession of exacerbations and remissions.

In some cases of this fever, we do not observe that the febrile reaction becomes more intense as it progresses, but in others, each succeeding exacerbation is more marked, the remission shorter and less noticable, until finally, the fever is nearly or quite continuous. The irritation of the stomach continues often for two, three or four days, in some cases, through the entire disease, if not arrested by remedies.

As might be supposed, the patient's strength fails day by day, innervation and secretion becomes more and more impaired, until by the seventh or eighth day we find him in one of two conditions. The fever having lost its original type,

has become an adynamic continued fever, with typhoid symptoms. Or the patient's strength having become greatly exhausted, we observe a want of reactive power, there is a tendency to congestion during the remissions, at which time the surface becomes cool, sometimes covered with a clammy perspiration, the pulse is small, weak, intermittent, and respiration short, quick, and difficult; coma makes its appearance, the patient lies upon his back, slips toward the foot of the bed, there is a jactitation, picking of the bedclothes, and after one or more unsuccessful attempts at reaction the patient dies. In this last case, the disease terminates fatally as a remittent; this, however, is a rare termination, for if not arrested during the first week it generally assumes a continued form, and presents all the symptoms of a continued fever.

In warm climates, as has been already remarked, the disease is more intense. When reaction comes up the skin is intensely hot, dry, and husky; the eyes suffused, of a muddy yellowish hue, often dull and languid; there is intense pain, and sense of insupportable weight in the head, with frequent extreme pain of back and extremities; the pulse is quick, frequent, more or less tense, and the respiration hurried and difficult. If the disease is not arrested early the remissions disappear, the skin becomes dry and rough, or moist and clammy, the tongue black and crusted, with much irritation of stomach, the pulse small and irregular, low muttering delirium comes on, and the patient dies.

COMPLICATIONS.—Remittent fever is frequently rendered difficult to treat by the existence of some local affection. Irritation of the stomach and duodenum is probably the most frequent complication; the symptoms are continued nausea and vomiting, tenderness on pressure over the epigastrium, with a feeling, frequently, of insufferable oppression in that region. Determination to the brain is also met with in the severer forms of the disease; indicated by, first, symptoms of cerebral excitement, followed by stupor, low delirium and coma. Disease of the liver is also of frequent occurrence in warm climates, most frequently manifested by symptoms of irritation, and increased secretion of acrid bile, which produces irritation of the bowels, but sometimes of congestion, the secretion being arrested. Various pulmonary affections are met with in this disease, especially bronchitis and pneumonia, of a congestive form.

POST-MORTEM EXAMINATION—The liver has usually been

found injected, softened, of a dark color and friable; the spleen enlarged and softened; the digestive mucous surfaces dark, discolored, ecchymosed, softened, sometimes thickened, or ulcerated. The blood is dark, fluid, and more or less broken down, and if the disease has been severe, frequently extravasated into the tissues.

DIAGNOSIS.—The character of the fever is easily determined after it has made one revolution, the remission recurring daily, serving to mark the diagnosis, still we frequently find cases in which from some complication, or the original severity of the disease, the remissions are very obscure, when the diagnosis will be difficult. The *prognosis* is generally favorable.

TREATMENT.—In this, as well as in other diseases, it is of the first importance, that any derangement of the stomach and bowels should be immediately corrected. If, therefore, we find our patient suffering from nausea, with ineffectual efforts to evacuate the stomach, we would administer a thorough and efficient emetic of Compound Powder of Lobelia and Capsicum. If there is redness of the tip and edges of the tongue, with tenderness on pressure over the epigastrium, counter-irritation, with agents to quiet irritation of the stomach would be indicated; as an infusion of Peach tree Bark, or that and Diaseorea, equal parts, or an infusion of Compound Powder of Rhubarb and Potassa, with sometimes the addition of small portions of Morphia. I have found the irritation of the stomach and bowels yield in some cases to the Essential Tincture of Aselepias, and small doses of Veratrum.

The next indication is, to reduce the force and frequency of the heart's action, induce relaxation, and gain a better remission for the administration of antiperiodics. I now use the special sedatives to accomplish this purpose, giving them in small doses, frequently repeated, and largely diluted with water, as R. Tinct. Veratrum Vir. f3j., Tinct. Aconite, Rad. f3ss., Aqua 3vj., administered in teaspoonful doses every hour, or half hour, until the desired result is produced. If an emetic has been administered, we find that continuing it in small doses, with the use of the hot foot-bath, and alkaline sponge bath, will produce indirect sedation and answer in place of the direct sedatives just named. Or sedation may be effected by the use of the vapor, or spirit-vapor bath, and the stronger diaphoretics.

The means just named will mitigate the sufferings of the patient, shorten the febrile exacerbation, and occasion a

longer and better remission. As the fever commences to decline we resort to mild diaphoretics, as the Compound Powder of Ipecac. and Opium, Asclepias, etc., and the saline diuretics, as the Acetate, Citrate, or Nitrate of Potassa, to increase secretion. During the remission, it is desirable to administer a sufficient amount of some antiperiodic to arrest the disease. Quinia is the most efficient agent. I generally combine it with the Prussiate of Iron, as in intermittent fever. It is usually better to commence its administration as the fever is declining; divide the amount necessary into three doses, and give them two hours apart, so that the last one will be taken at least half an hour previous to the expected exacerbation. The sedatives, diaphoretics, and diuretics, should be continued through the remission.

If the fever again rises, we stop all but the special sedative, continuing it until the fever commences to decline, then commence again with agents to promote secretion, and an increased dose of the antiperiodic in the remission; Opium to induce sleep is indicated, when the patient's rest has been broken. In some cases, three, four, or five revolutions of the disease will be made, before we are able to arrest it, but we notice, even in this case, a perceptible mitigation of the disease from the treatment.

In some cases, there is great torpor of the bowels, even when the stomach is irritated, and the retention of fecal matter and arrest of secretion increases the intensity of the fever. A mild but thorough cathartic will be beneficial, sometimes relieving the irritation of the stomach as soon as it operates. In the progress of the disease cathartics are not generally useful, but the bowels should be kept in a soluble condition by the administration of gentle laxatives.

If there is determination to the brain, the Tincture of Gelseminum should be administered with the direct sedatives in doses sufficient to produce its specific influence upon the system, with counter-irritation to the extremities and spine. If there be much nervous excitation, with pain in the back and limbs, the patient being uneasy and restless, the Tincture of Macrotys will be found a valuable remedy. If the coating of the tongue becomes dark early in the disease, I replace the preparation of Potassa named, with the Chlorate, giving it in doses of about five grains every three or four hours, with Turpentine ten to twenty drops. In the latter stages of the

disease we treat it as we would a *typhoid* fever, recollecting, however, that if a remission can be produced, large doses of Quinia at that time may arrest the disease at once.

CONGESTIVE OR MALIGNANT REMITTENT FEVER.

This form of remittent fever occurs most frequently in the South and Southwest, and sometimes proves extremely fatal. It is characterized by marked adynamia, congestion of important organs being its prominent feature.

SYMPTOMS.—The *cold stage* is usually short and not very severe, but the patient is dreamy and drowsy; the countenance is somewhat swollen, the look is vacant; the respiration oppressed and labored, and the pulse small and scarcely to be felt. There is, frequently, nausea and vomiting, with faintness, and sometimes diarrhœa.

Reaction comes up slowly, the pulse being small and weak, though frequent, and the anxiety and sense of weight at the præcordia increases. The temperature of the surface is but little increased, and that only about the trunk, the extremities being frequently cold. During the *remission* the pulse becomes very feeble and slow, the surface cold, the extremities livid, and the patient covered with a clammy perspiration. There is great torpor, the patient being aroused with difficulty, frequently coma makes its appearance during the first remission. These symptoms of congestion increase at each remission, until, finally, reaction can not be accomplished, and the patient dies. This has been termed the cold plague.

Again, there are cases in which the first reaction is extremely violent, the pulse is corded and frequent, the skin is hot, dry, and husky, great thirst, entire arrest of secretion, excruciating pain in the head, back and limbs, dyspnœa, and distressing oppression at the epigastrium. A short remission occurs, when again the febrile reaction comes on with increased intensity. This continues for two or three days, when a remission like that described above occurs, marked by great congestion, and consequent oppression of the vital powers, from which the patient never reacts, but dies in the stage of remission.

TREATMENT.—In the first case named, it is all important that such means should be used as would speedily remove conges-

tion, equalize the circulation, and overcome the depressed condition of the nervous system. A stimulant emetic has been employed at first by many of our practitioners in the South with advantage, an infusion of Compound Powder of Lobelia and Capsicum, is administered with simple Capsicum or Black Pepper Tea, the last being considered preferable. Emesis should be thorough and prompt, when it is almost always followed by normal return of circulation to the surface and extremities. At the same time the entire surface should be sponged with a decoction of Capsicum in vinegar, and heat applied to the patient warmly covered in bed. If further stimulation appears necessary, Tincture Xanthoxylum, Compound Tincture of Cajepuť, or brandy punch is freely given. Counter-irritation to the spine is especially indicated, and sinapisms should be applied to the surface over internal organs that are suffering most from congestion. These means are preparatory to the administration of Quinia, which should be given in doses of at least five grains every three hours until innervation is completely re-established, when the case is treated as a common remittent fever.

In the second instance, the high reaction is controlled by the special sedatives, and the extreme irritation of the cerebro-spinal centres, by counter-irritation, and the administration of Tinctures of Gelseminum and Macrotys. The anti-periodic in this case must be given in large doses, and will have to be commenced immediately after the fever commences to decline; 3ss. of the agent is usually considered about the amount necessary. Remedies to increase secretion are indicated, as in common remittent fever, and complications must be treated as they arise.

YELLOW FEVER.

Yellow fever is a disease of warm climates, prevailing principally in the torrid, and southern part of the north temperate zone. It is evidently closely allied to remittent fever, as it prevails in those sections, and those only, which are regarded as malarious. It makes its appearance in an epidemic form in the latter part of summer, and ceases its ravages with the first frosts. For its production it appears to be necessary, that the causes of vegetable malaria shall exist with intensity; that there shall be more or less decomposing animal matter, with a high range of heat for many days consecutively. Certain

sections of country appear to possess all the elements for the generation of the disease, and hence it makes its appearance with great regularity at such period of the year, as gives the necessary high and long continued heat for decomposition.

Persons who have long resided in those sections, have usually an immunity from the disease, which is doubtless owing to such gradual change in the constitution as enables it to throw off the malarial poison: such persons are said to be acclimatized. Persons from the north, or sections free from these malarial poisons, residing in a country where yellow fever prevails, are most liable to the disease. It is generally admitted that it is not contagious, at least not more so than other fevers where decomposition is speedily set up after death, or even before dissolution, as in *typhus*, and some cases of typhoid fever. There can be no doubt that the emanations from such persons are poisonous to those whose vitality has been impaired, and that if absorbed they will give rise to adynamic fever.

SYMPTOMS.—Yellow fever may be divided into three stages, which in many epidemics are well marked, but in others are indistinct. These are, first, a stage of primary fever, lasting from thirty to seventy hours; second a stage of remission; and third a stage of collapse.

FIRST STAGE.—This stage is sometimes preceded for some hours or days, with the usual prodromal symptoms of fever. Languor, listlessness, failure of appetite, and more or less pain in head, back, and limbs. Chilliness precedes febrile reaction in a majority of cases, though a well marked cold stage is rare. With the development of febrile reaction, the skin becomes hot, dry, and harsh; the urinary secretion is arrested, and the bowels are obstinately constipated. The patient suffers severely with pain in the back, limbs, and head, and is extremely restless and uneasy. Much irritation of the stomach exists from the first, with pain and sense of oppression in the epigastrium; in a majority of cases vomiting speedily comes on and continues through this stage—the retching and ejection from the stomach being painful and difficult. The eyes are generally suffused, redened, and very sensitive to light, presenting the appearance that would follow exposure to wood smoke; this has been looked upon as almost a pathognomonic symptom by some. The pulse varies greatly in different cases; in many, it is hard, quick, and irregular, in others small, corded and oppressed, and in others not different from what it would

be in a simple remittent. The tongue hardly ever presents the same appearance; sometimes clean, again broad, flabby, and covered with a thin white coat; again redened at tip and edges, pointed, and coated in the center; and again presenting a thick yellowish, or yellowish brown coat. As before remarked, this stage varies in duration, and there is just as much variation in its intensity.

SECOND STAGE.—The febrile action gradually abates; the vomiting ceases, or is less constant; the pains are much ameliorated; the skin becomes softened, and frequently covered with perspiration. The patient feels comparatively well, though exceedingly debilitated, and has hopes of speedy recovery, and yet, even now, may be noticed that yellowish discoloration, manifesting itself in the conjunctiva, and the skin of the forehead and breast, the precursor of that third stage, from which it is so difficult to recover. This remission, sometimes so complete, can hardly be noticed at others, but the first rapidly passes into the third stage, or collapse. It is always of short duration, not more than from two to ten hours.

THIRD STAGE.—In this stage the pulse becomes very feeble, and the prostration is excessive; the yellow appearance of the skin, which gives the disease its name, becomes plainly visible and continues to deepen as the disease advances. The irritability of the stomach is excessive; nothing can be retained, but the vomiting now is easy. The material ejected from the stomach is peculiar, being very dark colored, and hence known by the name of black vomit: this dark colored material has been determined to be broken down blood. Diarrhœa frequently ensues, the discharges from the bowels resembling that ejected from the stomach. The respiration is hurried and difficult, with frequent sighing, and the patient complains of an intolerable oppression and distress at the præcordia. The powers of life rapidly fail; slow delirium or coma comes on, and death soon eases the patient from his intolerable suffering.

POST-MORTEM EXAMINATION.—The scalp invariably reveals *necræmia*, or death of the blood, other lesions are but incidental or the result of complications. Sometimes the liver is enlarged, congested or softened, but at others it is contracted and brittle; the lungs are occasionally engorged, and blood is extravasated into their structure; the brain is generally harder than usual, but the dura-mater has been found studded with small spots of coagulated blood, and the arachnoid covered with a deposit of

coagulated lymph. The most common lesion of the solids, is softening of the mucous membrane of the stomach and bowels, with frequent dark discoloration.

DIAGNOSIS.—According to the statements of all authorities, it is extremely difficult, if not impossible, to distinguish yellow fever from the severer forms of remittent fever, in the first stage. Yet the prevalence of the disease as an epidemic in that locality, is considered sufficient cause to adopt a treatment suitable for its arrest, in every case presenting the symptoms named. The subsidence of the fever after the exacerbation has continued more than twenty-four hours, is a prominent evidence of the disease: the commencing yellow discoloration of the skin, great prostration, and finally vomiting of dark colored material, renders the diagnosis beyond cavil.

PROGNOSIS.—By our physicians in the South, the prognosis is considered favorable if the patient is seen during the first stage; but if the disease has progressed to the third stage, the prognosis is considered unfavorable.

TREATMENT.—The treatment adopted during the *first stage*, has for its object, the mitigation or arrest of the irritation of the stomach, an equal circulation of blood through the system, and a reduction of the intensity of febrile reaction, with consequent partial restoration of the secretions.

By many it is considered that the gastric irritation is most efficiently removed by agents to overcome the obstinate constipation of the bowels, and stimulate the liver to increased action, thus promoting a free portal circulation. The favorite remedies with such, are *R. Podophyllin*, gr. ss to gr. jss; *Lep-tandrin*, gr. ij to gr. v; *Potassæ Bitartras*, gr. v. to gr. x; administered at a single dose, with adjuvant means to quiet the stomach until the action of the cathartic. In the early part of the first stage, if the tongue is coated, with bad taste in the mouth, and sometimes ineffectual efforts to vomit, it is generally conceded that a thorough and efficient emetic should precede all other treatment, as it relieves the irritation of the stomach sooner and better, than any other plan of treatment. To equalize the circulation, the hot mustard foot bath is employed, and in severer cases, mustard friction to the entire surface; the patient is placed in bed, covered up warmly and a warm infusion of the simple diaphoretics, of balm, sage, catnip, etc., given until free perspiration is induced. Counter-irritation to the stomach, bowels, spine, and extremities, is also employed. Sour lemonade is recommended as a drink, if the patient com-

plaints of much pain. Tincture of Gelsemium in doses of gtt. xxv, every three hours, has been administered with advantage.

As soon as the remission becomes manifest, antiperiodics are given: the following appears to be the favorite combination: *R.* Quinia Sul., gr. x to gr. xv; Elixir Vitriol, gtt. xxx to gtt. xl; Tinct. Gelsemium, gtt. xxx to gtt. l; Syrup of Lemon, 3j; mix: to be taken at one dose: or, *R.* Quinia Sul., gr. x to gr. xv; Tannic Acid, gr. v; Tinct. Gelsemium, 3ss; Syrup of Lemon, 3j; mix, for a dose. Afterward Tinct. Gelsemium is administered in doses of f3ss every two or three hours, until four or five doses are taken.

After this the treatment will have to be conducted on general principles, meeting the indications as they arise. The stomach must be kept quiet, diarrhœa arrested if it appears, the patient's strength kept up by the judicious use of stimulants and nutritious but easily digested food, and especially must normal circulation in the skin and extremities be maintained, and free secretion from the kidneys. Convalescence is slow and must be managed with great care; any indiscretion in regard to diet or exposure tending to produce a relapse.

SYNOCHUS FEVER.

(SIMPLE INFLAMMATORY FEVER.)

It is exceedingly difficult to mark the dividing lines between the three divisions of continued fever, generally recognized by the profession. In fact, it is doubtful whether it would not be better to consider continued fever as a single whole, without attempting a division; but as such divisions are generally recognized, and may be studied with advantage by the student, I will attempt it. I may state in the commencement, that I am satisfied from personal observation and borne out by my authorities, that continued fever may commence as a *synochus* or simple inflammatory fever, and as it continues assume the form of *synocha* and at last terminate in well-marked *typhoid*. Not only so, but it is well-known that a fever may commence as an *intermittent*, then become *remittent*, then *continued*, and finally the patient will die of confirmed *typhoid*. Thus Dr. Hosack remarks: "The *typhus* fever, as it appeared at Wallkill, commenced as an *intermittent*, then became *remittent*, and at length ended in *typhus*."

CAUSES.—The causes of synochus fever are, first, those that predispose the patient to disease; as high irritability and tonicity of fiber, with vascular fullness and imperfect performance of the excretory functions. Atmospherical vicissitude is the common exciting cause.

SYMPTOMS.—This form of continued fever is generally sudden, there being but few premonitory symptoms. The patient's attention is often first arrested by chilly sensations passing over the body, and a sense of dullness and languor. Sometimes the chill is well-marked, in rare cases amounting to *rigor*, but often the sensation of cold is but slight.

This chilliness is rapidly followed by reaction; the skin becomes injected, dry, hot, and burning; the countenance flushed and animated; the pulse frequent, full, strong, and bounding, rarely hard and oppressed; respiration is frequent, the respired air hot, and the mouth and nostrils dry; the bowels are constipated, and the urine scanty and high colored; the tongue white, its papillæ elongated and erect. The patient experiences great thirst, and manifests increased sensibility especially in regard to light and noise. There is frequently some headache, with sometimes vertigo, and the patient is watchful, restless, and uneasy.

As the disease progresses these symptoms increase in severity; the secretions are still further arrested, the heat and dryness of the skin increase, and the patient is more watchful and uneasy. All the symptoms are usually more exasperated in the evening and early part of the night. The fever continues to increase in intensity until about the fifth or sixth day, when there is a tendency to a crisis, and the disease is frequently arrested by the establishment of secretion. If it progresses much beyond this period, we observe a manifest prostration, the symptoms being those of synochoid; and in the course of as many days more, marked evidence of disorganization of the blood and typhoid symptoms. We rarely, if ever, see the disease terminate fatally as an inflammatory fever, unless complicated with inflammation of some important organ.

COMPLICATIONS.—The most frequent complication of this disease is inflammation of some part of the respiratory apparatus, the symptoms of which are frequently obscured by the fever; this complication must be constantly watched for. Determination to, and inflammation of the brain, occurs in some cases; but the symptoms developed will usually arrest

the attention of the physician. Occasionally irritation of the stomach arises and renders the treatment difficult.

DIAGNOSIS.—The continued reaction determines the type of the fever; the marked evidence of excitation, little prostration, and the full and bounding character of the pulse, showing great vital power, distinguishes it from synchoid and typhoid. The prognosis is favorable if no serious complication should arise.

TREATMENT.—We notice two prominent indications in the treatment of this disease; first, to reduce the force and frequency of the circulation and the irritability of the nervous system, and produce relaxation; and, second, to obtain secretion from the principal outlets, the skin, kidneys, and bowels.

Before the introduction of the special sedatives, the first was accomplished by the administration of nauseant diaphoretics, the use of the cold affusion, or spirit or other vapor baths, with frequently the administration of a hydragogue cathartic. We now accomplish the same end by the administration of the special sedatives. In this case, the *Veratrum Viride* in small doses frequently repeated, with the addition of *Gelsemium* and *Macrotys* to relieve nervous irritation, will accomplish the purpose. The Tincture of *Veratrum Viride* should be administered in doses from one to three drops every half hour or hour, with about ten drops of the Tinctures of each of the other two agents named. The surface should be frequently bathed with moderately cool water and some warm diaphoretic infusion given as a diluent. If there appears to be great vascular fullness it is best to administer at first a free cathartic, as Compound Powder of Jalap and Senna and Bitartrate of Potassa, $\bar{a}\bar{a}$ 3ss; which by producing free watery discharges from the bowels will increase the effect of other remedies. This treatment will moderate the febrile reaction, and in from thirty to seventy hours we will find the pulse reduced to nearly a normal standard, the irritation of the nervous system subdued, and relaxation of the entire system, with increase of secretion.

Then we commence the administration of diaphoretics and diuretics, still continuing the sedative, to keep up its influence. The mild diaphoretics produce the best results, as an infusion of *Asclepias*, *Eupatorium*, *Polygonum*, *Pterospora*, etc., or *Asclepin* and Comp. Powd. of *Ipecac* and *Opium*, equal parts. The action of these agents should be increased by the use of the hot foot bath. The saline diuretics, as the Acetate, Citrate or

Nitrate of Potassa, are the ones indicated, in doses of gr. xx, every four hours. Moderately free secretion from the skin and kidneys is thus obtained, and the system still further relieved. A sufficient dose of Opium to induce sleep is now very beneficial. This treatment, if there are no complications, should be continued until convalescence is established, and if properly pursued it will arrest the fever in from three to four days.

SYNOCHOID FEVER.

(COMMON CONTINUED FEVER.)

This form of fever occurs in persons of moderate strength of constitution, and when there has been no previous cause acting on the system to lower the vitality, or permanently derange the excretory organs, and the constitution of the blood. At its commencement we notice no symptoms of great impairment of the fluids, though should the disease continue long, such change in the blood will occur as to give rise to *typhoid* symptoms. This is the disease which in the majority of cases, has been designated as typhoid fever, because if allowed to progress, such symptoms became manifest; but more frequently because popular opinion regards the last named fever as an exceedingly dangerous disease, and physicians like to claim the credit of curing it. I use the term typhoid in its literal meaning, "*resembling typhus*," and apply it to those cases exhibiting marked loss of vitality, and commencing necræmia. If it was strictly used in this sense, we could understand better, perhaps, the treatment necessary to its arrest, at least, we would be able to attach some meaning to much that is written about typhoid fever.

CAUSES.—The *predisposing* causes of this, as well as typhoid fever, are all such as occasion temporary exhaustion and want of power in the system to react and expel disease. The *exciting* causes are numerous: as an arrest of secretion, and retention of excrementitious material; the absorption of exhalations from vegetable and animal matter undergoing decomposition; animal miasms, as from healthy persons or animals crowded together, or confined in imperfectly ventilated situations, and without due regard to cleanliness; from persons laboring under disease of any kind in ill-ventilated apartments. "Every population," says Mr. Chadwick, throws off insensibly an atmosphere of organic matter, excessively rare in country and town, but less rare in dense, than in open dis-

tricts; and this atmosphere hangs over cities like a light cloud, slowly spreading, driven about, falling, dispersed by the winds, washed down by showers. It is not *vitalis halitus*, except by origin, but matter which *has lived*, is dead, has left the body and is undergoing decomposition into simpler than organic elements. The exhalations from sewers, church-yards, vaults, slaughter-houses, cess-pools, commingle in this atmosphere; and, notwithstanding the wonderful provisions of nature for the speedy oxidation of organic matter in water and air, accumulate, and the density of the poison (for in the transition of the decay it is a poison,) is sufficient to impress its destructive action on the living, to receive and impart the processes of zymotic principles, to convert by a subtle, sickly, deadly medium, the people agglomerated in narrow streets and courts, down which no wind blows, and upon which the sun seldom shines." I have never as yet seen a case of this or typhoid fever, but what I could discover in the present or previous location of the patient, the presence of decaying animal matter, to account partially, at least, for the character of the disease.

SYMPTOMS.—The *stage of incubation* is generally of some days duration, though when the cause is intense, it may be brief. The patient complains of languor, indisposition to exertion, loss of appetite, irregularity of bowels, dryness of skin, and more or less pain in head or back, and soreness of muscular tissue. These symptoms increasing, at last a tolerably well marked chill comes on, the patient feels cold, especially at the extremities, and chilly sensations pass over the body. These are shortly alternated with flushes of heat, which become more and more marked, until febrile reaction is established. In rare cases, the cold stage is as well marked as in an intermittent, amounting to a rigor; in many the patient hardly notices the cold stage, it is so slight.

With the development of reaction, the skin becomes hot and dry, the urinary secretion scanty, high colored, and does not deposit a sediment, and the bowels are constipated. The mouth is dry, and the tongue coated with a slightly yellowish-white coat, or in some cases a heavy yellowish coat on base, with a bad taste in the mouth and slight nausea; in others, the gastric mucous membrane being irritable, it is elongated, the tip and edges reddened, but coated white in the center; there is thirst, but not so intense as in the preceding form of fever. The pulse is frequent, full, sometimes hard, especially if there is irritation of the mucous membranes, or cerebro-spinal centers, but

rarely bounding. In some cases there is nausea and even vomiting; but if so, the tongue will either be found heavily coated at base, with a disagreeable taste in the mouth, and sense of oppression in the epigastrium, or pointed, with reddened tip and edges, and tenderness on pressure over the stomach.

The condition of the nervous system is variable: sometimes the patient is restless, uneasy, and watchful, the special senses being painfully acute, so that the patient can not bear a bright light, and is disturbed by the slightest noise; at others, he lies torpid, does not appear to appreciate his condition, is but slightly affected with what transpires around him, and lays quiet in one position. In either case there may be headache; in the first it is acute, the face being flushed, and eyes reddened, evidencing determination of blood; in the last it is generally dull, a disagreeable sensation of heaviness and oppression.

The symptoms above named, increase in intensity to the third or fourth day, after which the fever exhibits but little change if uncomplicated, except the increasing debility, until after the seventh day; when if it does not terminate by the establishment of secretion, either naturally, or by the aid of medicine, we observe symptoms of deterioration of the blood, and prostration, making their appearance, and after a variable length of time a low typhoid condition ensues, and we have in fact to treat a fever of the next variety.

COMPLICATIONS.—This form of fever is frequently complicated with local disease, most generally of an inflammatory character; yet as the fever is fully developed before the local disease commences, the symptoms of the latter are often very obscure.

WITH PREDOMINANT AFFECTION OF THE CEREBRO-SPINAL CENTERS.—This forms the *nervous fever* of older writers, and is not an uncommon disease. The symptoms are all increased in intensity; the skin is intensely hot and pungent, especially of the head and face; the pulse is rapid, strong, and full; the breathing frequent and suspirous, and the eyes injected and suffused. There is great irritability and restlessness, with more or less intense headache; giddiness; intolerance to light and noise, and greatly increased general sensibility. Within three or four days, delirium makes its appearance, followed in a longer or shorter time by coma-vigil, coma and insensibility, and by subsultus tendinum. In some cases, the cerebral affec-

tion being intense, we find stupor making its appearance speedily, accompanied by a slow, oppressed, and intermittent pulse. If the affection of the nervous centers is acute, the disease may terminate fatally without much disorganization of the blood, but if not, the fever rapidly assumes a typhoid character.

WITH PREDOMINANT AFFECTION OF THE RESPIRATORY APPARATUS.—This is the most common complication of continued fever, though generally, it exists in but a slight degree. The bronchial mucous membrane is frequently irritated, with slight implication of the lungs. This necessarily aggravates the fever, and induces farther complication, by preventing proper oxygenation of the blood. The patient complains of slight oppression and difficulty of breathing, with accelerated respiration, and slight cough. If bronchitis is fully developed the difficulty of breathing is increased, and secretion is generally established early, and a mucous roushus is heard over the chest, upon auscultation. If much of the structure of the lung becomes diseased, the breathing is hurried, oppressed, and sometimes laborious, the sputa rounded and streaked with blood, and in a short time exhibits the characteristic rusty color of pneumonia. There are manifest symptoms of imperfect aeration of the blood, dark dusky hue of the lips and tongue, flushed appearance of face, oppressed circulation, and coldness of the extremities. With such complication, we notice that prostration is very rapid, and contamination of the fluids speedily ensues, with typhoid symptoms. Low delirium and coma are frequent attendants upon this condition.

WITH PREDOMINANT AFFECTION OF THE GASTRO-ENTERIC MUCOUS MEMBRANES.—In some cases we observe at the commencement, marked symptoms of disorder of the stomach; the tongue is heavily coated, especially at its base, with a dirty-yellowish secretion; there is slight nausea; disgust for food, and oppression in the epigastrium; every thing that is administered, is taken by the patient with difficulty, and frequently ejected. This condition is not generally accompanied with as high febrile reaction as in the uncomplicated fever, but there is rapid prostration, and manifestation of typhoid symptoms. In this case there is increased secretion of mucous from the mucous membrane of the stomach, which if allowed to remain will undergo decomposition, and being slowly absorbed will generate decomposition of the blood. In other cases there is

marked irritation of the stomach, manifested by redness of the tip and edges of the tongue, uneasiness in, and pain on pressure over the epigastrium, with nausea, and rejection of fluids and solids taken into the stomach. In this case, all the febrile symptoms are increased. The enteric affection does not generally manifest itself in the early stage of the disease. It commences with looseness of the bowels, two, three, or four evacuations in the twenty-four hours, with pain and soreness in the abdomen, especially on pressure. The tongue is moist and loaded with a dirty-white, or grayish fur, which as the fever advances, changes to brown, and sordes appear on the teeth and lips; in some cases, the edges and tip of the tongue are reddened. In this case, the fever rapidly assumes a typhoid character.

POST-MORTEM EXAMINATION.—As before remarked, this fever if uncomplicated, rarely terminates fatally, unless it runs into the next form, when the scalpel will reveal the same lesions. If complicated, there will be marked evidence of the local affection, though we find that the inflammation has been of an ataxic character.

DIAGNOSIS.—The character of the fever can be readily determined after the second day; its uniform progress, medium grade of reaction, and tendency to vitiation of the fluids, are very apparent. It is difficult in many cases to diagnose the local lesions; when the fever is complicated, much care must be used in the examination, and the symptoms carefully compared with those generally ascribed to the local affection.

PROGNOSIS.—The prognosis should be favorable if the fever is uncomplicated. If local disease should arise in its progress, the prognosis would depend upon its intensity, and the part affected.

TREATMENT.—I believe that this fever can be arrested, in a majority of cases, at any period of its course, previous to the development of low typhoid symptoms, and in this I differ from a majority of the profession: I might have said I know it, for such has been the result in my practice too frequently for it to have been accidental. In giving the treatment, I will here only give the abortive plan, and refer the reader to the next form of fever for other treatment, for if not stopped, there is nothing more certain than that it will assume that form.

There are three principal and well defined indications for the arrest of this disease, and if by medicinal means they

can be accomplished, the fever will be arrested. First, to produce arterial sedation, and its attendant relaxation, and a diminution of the heat of the body. Second, to establish excretion, and eliminate the broken down elements circulating in the blood. And third, to restore the tone and integrity of the nervous system.

To accomplish the first, we have the direct and indirect sedatives. I prefer the direct sedatives, but might here remark that unless properly used, they are frequently inefficient, and sometimes even harmful. The influence desired is gradual but permanent sedation, without prostration, and I hold that this can only be obtained in a majority of cases by small doses frequently repeated, giving sufficient time for the accomplishment of the result, say from one to three or four days, according to the condition of the patient. In my practice, I use the Tinctures of Veratrum and Aconite, largely diluted with Water, giving from one to two drops of the first, and half the quantity of the second, every half hour, with the frequent use of the sponge bath. The influence is very gradual, but it is permanent, and as sedation increases, hour by hour, I find increased strength of pulse, a greater equality in the circulation, and better innervation. Now, I have seen the Tincture of Veratrum employed, say in doses of five or six drops every three or four hours, and increased every second or third dose, until ten or fifteen drops would be taken at a time, and but little diluted, and the result would be temporary sedation from one to two hours, then reaction; and thus owing to the manner of administration, there would be a succession of sedation and excitement, until finally, perhaps, the dose would be so large that speedy sedation would result, with prostration; the remedy would have to be suspended, and before it was again commenced febrile reaction was as high as ever. Now, we certainly would expect no beneficial results from such practice. Again, it will not do to produce sedation too rapidly by the administration of large doses, for very frequently a feeble circulation, with partial stasis of the blood in parts far from the centre of circulation would be the result, which would certainly be as bad in many cases as the febrile reaction. Another very common mistake, is the attempt to accomplish too much at once; thus many times the physician administers remedies to produce sedation, and establish secretion, and not satisfied even with this, administers Quinia and stimulants.

Now, it must be apparent to all, that secretion can not be established when there is high febrile reaction, neither can the nervous system be favorably impressed with Quinia; but these very means, by exciting certain organs, frequently prevent the due action of the sedative.

That sedation and relaxation can be effected and continued by the employment of the special sedatives, few at the present day will deny. And if this is accomplished secretion is readily established. Thus, sedation being produced, we still continue the remedies to prevent reaction, and commence the employment of diaphoretics and diuretics. The mild diaphoretics named in the preceding form of fever are the ones best adapted to secure secretion from the skin, the alkaline diuretics being employed to increase elimination from the kidneys. If from the symptoms we judge that there is accumulation of feces in the intestines, producing irritation, we administer a mild cathartic, not otherwise. Secretion from the skin is greatly promoted by the use of the hot Mustard foot-bath, and warm applications to the body.

As soon as the skin and kidneys commence to act, it is necessary to stimulate the nervous system, so that these critical evacuations may not fail for want of innervation. For this purpose I employ Quinia, generally associated with Hydrastine. The medium dose of the first would be about two grains, of the second one grain, every three hours, but we must be governed entirely by the condition of the patient; in these cases the rule that governs me in its administration is this, that as much should be given as the patient can take without causing excitation, but as soon as an increased frequency of the pulse is noticed its administration should be stopped, and when again given, it should be in smaller doses. If the patient has passed several sleepless nights, we will now find that he will be greatly benefited by a sufficient dose of Opium to induce sound sleep.

If there is irritation of the *cerebro-spinal* centers, with determination of blood, active counter-irritation to the spine and extremities should be immediately resorted to and continued. If nothing contra-indicates, a brisk but not irritating cathartic may also be administered as a means of derivation. The Tincture of Gelsemium, in connection with the sedative, becomes then a valuable remedy, whilst the heat of the head may be removed by the application of warm water, and its

evaporation by fanning. If, as in some cases, there is derangement of the stomach, with morbid accumulations, nothing will give as speedy relief, as a thorough emetic.

If *bronchitis* or *pneumonia* should arise, judicious counter-irritation should be employed, with warm stimulant fomentations to the chest, and nauseant expectorants to promote secretion. This, however, should not interfere with the proper treatment of the fever. If the lungs become much engorged, with great difficulty of breathing, an emetic of the Acetous Emetic Tincture, or Compound Powder of Lobelia and Capsicum, should be immediately administered and carried to thorough emesis and relaxation, and followed by warm diaphoretics and other adjuvant means to promote secretion from the skin.

In those cases in which the tongue is heavily loaded, with nausea and oppression at the epigastrium, all treatment must be preceded by a thorough emetic. In this condition, no remedies will produce a favorable influence, until the morbid accumulations in the stomach are removed, and if not done, the prostration will be rapid and typhoid symptoms speedily manifested. If there is irritation of the stomach, this must be first subdued. Counter-irritation to the epigastrium and extremities, with the employment of those agents known to relieve gastric irritation, should be used here. Frequently the employment of stimulant enemata, by stimulating to action the lower intestine, and producing free evacuation, will greatly aid the other measures. The enteric disease should be controlled, as named under typhoid fever.

TYPHOID FEVER.

It will be recollected that any fever, either idiopathic or symptomatic, will assume a typhoid character, if it continues sufficiently long for the blood to become engaged in a process of decomposition. Now, in all such diseases, we notice that there is more or less rapid breaking down of the tissues, and the excretory organs being in such condition that it can not be freely removed, the detritus of the body remains in the blood. This material is undergoing *retrograde metamorphosis*, and it is a well ascertained fact, that in certain conditions of the system, this decomposition is propagated in the blood. If

these be facts, we can readily see how a patient may be poisoned by the breaking down and retention of his own tissues. Thus says Dr. Williams, "In several cases of the early stage of the severest form of Bright's disease, in which the urine was very scantily secreted and highly albuminous, I have seen *typhoid* symptoms of the worst character ensue, accompanied by a breaking up and partial solution of the coloring matter of the blood, with the appearance of pus globules in it."

There are causes producing fever which affect the integrity of the blood at the beginning, setting up within it a process of decomposition, which is more or less rapid, according to the degree of vital power in the system. Such causes would produce *typhoid* fever, and if the vital power of the patient was depressed at the time of exposure, the symptoms would be evident from the commencement.

CAUSES.—The *predisposing* causes of typhoid fever, are all such as greatly depress the vital power of the system, either temporarily or permanently, and we might say, with truth, that no person unless originally of feeble vitality, or laboring under some cause that produces depression at the time of exposure, can have primary typhoid fever. It is true, that if the cause acting upon the system was very intense, the disease might be rapidly developed. Animal *miasmata* is the exciting cause of the disease, and by this we understand *animal matter in a state of decomposition*. Liebig says, "An animal substance in the act of decomposition, or a substance generated from the component parts of a living body by disease, communicates its own condition to all parts of the system capable of entering into the same state, if no cause exist in these parts by which the change is counteracted or destroyed." Thus, exposure to gaseous exhalations from animal matter undergoing decomposition, or arising from persons suffering from low typhoid disease, the material gaining entrance into the blood through the lungs, will, if there is not sufficient resistance in the system, set up a process of decomposition, which continuing, will give rise to the phenomena we observe in this form of fever. Thus, in those cases in which decomposing animal matter is introduced into the system by a *dissecting wound*, we observe, first a chill, then febrile reaction with great depression, and finally, evidence of complete death of the blood, all the symptoms of reaction being of a typhoid character.

This form of fever may be either *endemic*, *sporadic*, *epi-*

demic, or *contagious*; if endemic, we will find a more or less intense local cause; if sporadic, the miasm may have been speedily generated and dispersed; if epidemic, we have to look to the condition of the atmosphere, as regards moisture and temperature, for the rapid propagation and spread of the miasm. That in certain conditions the disease is contagious, I believe few will deny. Thus, from a person suffering from low typhoid fever, there is continually given off in the excretions, and from the lungs, matter in a state of decomposition, and if proper attention is not paid to ventilation and cleanliness, these exhalations assume a degree of intensity that will unfavorably impress all that come within their reach, and will give rise to the same form of fever, in those predisposed to disease.

SYMPTOMS.—The stage of incubation is frequently of considerable duration in this disease, the symptoms being those of depression. The patient complains of languor and debility, with giddiness, dullness, and confusion of intellect; the appetite is impaired, uneasiness at the epigastrium, and sometimes slight nausea; a general sense of soreness and stiffness, with more or less pain in the back and limbs is not unfrequent. These symptoms increasing for two or three days, the patient complains of slight chilly sensations, with coldness of extremities, which becoming more marked, are alternated with flushes of heat. This chill lasts from six to eight hours, but sometimes is prolonged to one or two days.

With the development of reaction, the pulse becomes frequent, full and open, or soft and weak, in some cases soft and easily compressed, or if of a nervous character, quick and sharp. The tongue is generally loaded with a dirty mucus, and is broad, soft, flabby and moist, but sometimes coated in the center, but with reddened tip and edges; there is considerable thirst. In some cases the tongue is heavily loaded, especially at the base, with bad taste in the mouth, and feeling of oppression at the epigastrium, indicating morbid accumulations in the stomach. The urine is slightly diminished in quantity, appears turbid and frothy, but does not deposit a sediment; the bowels are frequently natural as to frequency, but extremely susceptible to the action of medicine; the discharges being thin, pale, and frothy. The temperature of the surface varies greatly, sometimes it is intensely hot and pungent, but more frequently, but slightly increased, with tendency to coldness of the extremities. The countenance is dull, pallid,

and shrunk, or transiently flushed; the eyes heavy and devoid of lustre, and the head heavy, confused, and giddy. The patient sometimes exhibits great uneasiness, and is restless, changing his position frequently, but at others is torpid, careless, and unimpressible. The respiration is frequently but little affected the first two or three days, but sometimes frequent and suspirous.

By the fifth to the eighth day we find that the head has become more affected, and the mind is confused, the patient reasons with difficulty and answers slowly. Sometimes, even at this early period, we have a partial development of that dreamy delirium termed *typhomania*. The respiration has now become affected, and is short and quick, or labored and suspirous. In many cases symptoms of enteric affection begins to manifest itself; the bowels are irregular, two, three, or four evacuations in the twenty-four hours, watery, yellowish, clay-colored, frothy, and fœtid. The urine is but little diminished in quantity, but is pale and frothy, resembling whey or new made beer. The patient in many cases, now begins to complain of tenderness of the bowels, and it will be found that pressure produces pain.

By the tenth or twelfth day, the bowels have become quite loose, the operations frequent and difficult to arrest, with increased tenderness on pressure, and flatulent distension of the abdomen. The coating of the tongue has been gradually changing its color, and is now coated brown, somewhat fissured, or sometimes the coating has disappeared and the tongue is dry, red, and glossy; sordes commence to appear upon the teeth and lips. Typhomania has now become fully developed, the patient appears half-asleep, his mind wanders, he talks to himself of his business, his pleasures, or reveling in the chambers of memory he appears to be living his past life over. Sometimes this typhomania is replaced by *coma-vigil*, the patient appears to be in a profound stupor, but is aroused by the slightest sound, to immediately sink back into his former condition. About this time, though sometimes as early as the fifth day, the *rose-colored eruption* makes its appearance upon the breast and neck; this eruption manifests itself in small rose-colored spots about the size of the head of a pin, the color disappears upon pressing the finger over them, but returns when the pressure is removed. Malaria sometimes makes its appearance at this time, in the shape of minute vesicles, filled with limpid serum. The patient has now be-

come so prostrated that he requires assistance to get up in bed, or change his position.

From this to the twentieth day, the diarrhoea becomes worse, the discharges being dark, fœtid, and very offensive, and the abdomen very much distended; the coating upon the tongue becomes almost black, and the teeth and lips covered with a dark offensive sordes. The prostration is extreme, and the stupor profound. Frequently the heat of the surface sinks, the extremities being kept warm with the greatest difficulty; and sometimes there is fœtid perspiration. Petechiæ sometimes make their appearance in the shape of small purplish-red discolorations, not effaced by pressure; these extending, form vibices. The posture is constantly supine, with tendency to slip down to the foot of the bed. The fæces and urine are now discharged involuntarily, or in some cases there is suppression of urine, which, if allowed to continue, will cause great distension of the bladder with rapid prostration and death. Sub-sultus tendinum comes on, with picking at the bed-clothes, and finally jactitation. At last, the vitality of the patient is so far exhausted, that there is no longer power to circulate the blood, and the patient dies.

COMPLICATIONS.—This form of fever is not unfrequently complicated by low forms of inflammation of various organs, and as the symptoms are obscure in many cases, much care must be used in the diagnosis. The principal complications, are those named in the preceding form of fever, and, as the symptoms are the same, with the exception that they are of a lower grade, the reader is referred to that for description.

POST-MORTEM EXAMINATION.—Dissection shows the blood dark, fluid, diffuent, and the red globules partly broken down, with, sometimes, the presence of gas in the vessels. Frequently there has been transudation of blood from the vessels into some of the tissues, giving rise to dark discoloration, and ecchymoid spots. All the soft tissues are softened, but this is especially marked in the mucous membranes. In about eighty per cent of cases, Peyer's glands will be found diseased; sometimes there is mere engorgement, owing to the deposit under the mucous coat of a yellowish-white matter; in the majority of cases there is ulceration, and sometimes the ulceration has extended in width and depth, affecting the sub-mucous, muscular, or even serous coats, occasionally ending in perforation. The mesenteric glands are very generally enlarged and soft-

tened, sometimes containing puriform matter. The other viscera of the abdomen occasionally suffer, but this is generally the result of a low form of inflammation, during the progress of the disease.

The lungs are often much diseased, even when not affected by inflammation, but this is referable to the predominance of the physical over the vital forces in the last days of the illness, they being congested and much softened, especially in their most dependent portions. Great prostration of the nervous system was a prominent symptom from the commencement, but we do not find sufficient lesion of the cerebro-spinal centers to account for it. Thus, in thirty-eight cases, examined by Chomel, there was injection of the membranes in four, œdema of the membranes in seven, slight softening of the brain in six, effusion of serum in ventricles in twelve, red points in nervous matter in five, increased density in two, but in fifteen there was no perceptible lesion.

DIAGNOSIS.—In the first stage, the peculiar dullness of intellect, prostration of strength, and feeble pulse, is sufficient to determine the character of the disease. Then, the lax condition of the bowels, tenderness on pressure, typhomania, rose-colored eruption, dark coating of the tongue, sordes on teeth, etc., that gradually make their appearance, are so evident, that no mistakes can occur.

PROGNOSIS.—In the early stage, if there is no complication, the prognosis is favorable, as in a majority of cases the disease can be arrested before the severer symptoms make their appearance. If complication should arise, the case becomes more grave, and the prognosis will have to be guarded. In the latter stages of the fever, if the nervous depression becomes less, with tendency to quiet sleep, brighter color of rose-colored eruption and petechiæ, turbid urine, natural stools, and soft, warm, and moist skin, the prognosis is favorable. But, if coma increases, with subsultus tendinum, hemorrhage, involuntary discharges of fæces and urine, feeble and intermittent pulse, cold extremities, fœtid perspiration, etc., the patient will probably die.

TREATMENT.—The object of treatment at first, is the arrest of the fever, and this can be accomplished, in a majority of cases, by the seventh day, and before the severer symptoms make their appearance. The abortive treatment is the same as in the preceding disease, but I will repeat it.

First, if there is evidence of morbid accumulation, in the

stomach, this must be removed, or all treatment will prove unsuccessful. I know from personal observation, that, where the stomach is thus oppressed, typhoid symptoms rapidly supervene, and the probabilities are that the patient will die; and farther, that such accumulation in the stomach, proves the cause of the rapid development of the enteric disease in many cases. In this case, an emetic precedes all other treatment, the Acetous Emetic Tincture, or Compound Powder of Lobelia and Capsicum being my favorite agents; if there is great prostration, a stimulant should be combined with them. The action of the emetic should be prompt and thorough, and aided by warm stimulant diaphoretic infusions, which should be continued afterward to produce diaphoresis, aided by the hot mustard foot-bath, and warmth applied to the body. As soon as the emetic has ceased acting, the special sedatives should be administered in doses just sufficient to continue the influence produced by it. If in the early part of the disease, the bronchial mucous membrane or lungs become affected, the same treatment should be adopted, with the addition of counter-irritation.

In other cases we commence the use of the direct sedatives, and here I prefer the Veratrum, associated with Asclepias, as R. Tincture Veratrum Vir., f3ss., Essential Tincture of Asclepias, f3j., Syrup of Lemon, f3ij.—M., and administer a teaspoonful every hour. If the skin is hot and pungent, the alkaline sponge bath should be employed, three or four times a day, but if there is deficient capillary circulation, with tendency to coldness of the extremities, a sufficient quantity of Tincture of Capsicum, added to water, to give the necessary stimulation, should be employed in its stead. The extremities *must* be kept warm, or the entire treatment will fail, because, if they are cold, with deficient capillary circulation in the skin, there is stasis of blood in internal organs, which suffer as well as the blood, and if sedatives are now administered, these conditions are increased, and though the pulse is diminished in frequency, it is also decreased in strength, with still farther congestion. Sometimes I find it necessary to order the frequent application of Tincture of Capsicum, or other strong stimulant, to the extremities, with the constant use of bottles of hot water, etc.

The dose of Veratrum named, is about the medium quantity, where there is evidence of congestion it will have to be smaller, if the febrile reaction is vigorous, it may be increased. I do

not desire marked sedation under twenty-four hours, and many times not before forty-eight, or seventy-two hours. We will notice, that the above remedies, used in this way, gradually decrease the frequency of the pulse, but it becomes more full, stronger, and especially better in parts far from the heart, with better innervation. At last, the pulse coming down to eighty or ninety beats per minute, we observe evidence of commencing secretion. Now, diaphoretics and diuretics may be advantageously employed, the sedatives being continued in doses just sufficient to maintain its effect. The preparation of *Asclepias*, above mentioned, I use, first, for its gentle stimulant and soothing influence, upon the nervous system, and because it tends to stimulate circulation to the surface, but now it may be continued as a diaphoretic, or other gently stimulant agents used in its place. As a diuretic, I employ a weak solution of equal parts of Chlorate and Acetate of Potassa, the medium dose of each being about five grains every four hours.

When secretion has commenced, *but not before*, we resort to Quinia to increase innervation; I generally employ it in the following combination, *R.* Quinia Sulphas, Hydrastin, āā. ʒss. —M., and divide into fifteen powders, the dose being one every three hours, being governed as we mentioned in the preceding disease. If it seems necessary, stimulants may be employed in addition.

Then, if the patient shows no tendency to sleep, about nine or ten o'clock in the evening, when everything has become quiet, a sufficient dose of opium should be given to induce sleep.

During this time, the patient should be freely supplied with diluents, and such light food as the appetite craves, and we think can be easily digested. Everything in the room and about the patient should be kept scrupulously clean, and the apartment thoroughly ventilated by admitting air from the sunny side of the house, and keeping an open fire in the room. Few persons should be in the room at a time, and the patient's mind kept calm; especially should care be used not to excite expectant attention in the patient by secret movements, whispered conversation, or by failure of attention at the time expected. More depends upon this, than is generally admitted by physicians. We can not "kick nature out of doors, and depend upon the materia medica," as has been advised by a somewhat prominent physician.

When the disease has progressed for some days, and the blood becomes seriously affected, we may not be able to arrest it, at least, not speedily, and we must adopt additional treatment to meet the development of low typhoid conditions.

When tenderness of the bowels is first noticed, the use of dry cups, followed by the application of Tincture of Arnica, and Turpentine, to the abdomen, will be found beneficial. Sometimes, warm stimulant fomentations produce a good effect. If, at this time, there is torpor of the bowels, with indications that retained feces are producing irritation, a *mild* cathartic, carefully administered, will be advantageous, *under no other circumstances should cathartics be employed*. The diarrhœa may be controlled at first, by the employment of any of the mild astringents, frequently the Tris-nitrate of Bismuth in solution with Peppermint-water and Turpentine, acts admirably in doses of three grains of the first, one or two drachms of the second, and ten to twenty drops of the third. An infusion of the bark of the young limbs of the Peach tree, in teaspoonful doses, with a small quantity of Tincture of Xanthoxylum, and one or two grains of Geranin is one of the best means of arresting it. *Tymphanitis* is relieved by the local application of Turpentine, demulgent enemata containing the same, and its internal administration with Tincture of Xanthoxylum. Dr. Stoker, strongly recommends enemata of Yeast and Assafœtida, as the most efficacious means of removing this condition.

The prostration of the nervous system is combated with Quinia, bitter tonics, stimulants, and the regular administration of small quantities of nourishment, as beef-tea, etc. When manifested by typhomania or coma vigil, the Ammoniated Tincture of Valerian, with Camphor, Tincture of Cypripedium or Serpentaria, may be used with advantage. If there was imminent danger to the patient, and especially if the discharges from the bowels were copious, I would administer Opium, with Camphor and warm aromatic spices, the dose of the first being large enough to induce sleep, say from one to two grains.

To control the septic condition of the blood, acid drinks should be freely given, when desired by the patient. The Chlorate of Potash, combined with Hydrochlorate of Ammonia, is often useful. When the diarrhœa is profuse, the Chlorinated Soda or Labarraque's solution, is probably the best of the chlorides; its administration should be commenced in doses of fifteen drops, in aromatic water, every three or four hours,

increasing it as the disease progresses, to thirty or forty drops. Yeast has been employed with advantage in doses of two table-spoonfuls every three hours, with an equal quantity of Camphor mixture. It is said by Dr. Stoker, "to correct the morbid contents of the alimentary canal, and the consequent symptoms of putrescence, petechiæ, and black tongue, being more effectually removed by it than by any other means."

. With the exception of Quinia, I doubt much, whether any advantages result from the administration of the bitter tonics. Stimulants additional to those named are required in the advanced stage of the disease, but they must be administered with care; small quantities, frequently repeated, so as to keep up a continued influence, are beneficial, but under no circumstances, should the system be over-stimulated by large doses, and the stimulant then stopped, for the prostration ensuing might be fatal. Small quantities of bland nutritious food should be regularly administered, and bland mucilaginous or acid diluents sufficient to satisfy the patient's thirst.

The patient's position should be frequently changed, and the bed shook up beneath him, and the cover straightened out. This is necessary to prevent injurious pressure on any part, which might give rise to *bed sores*; if any part becomes tender, with dark discoloration, or blanched white appearance, dilute Tincture of Arnica and means to remove the pressure from the part should be employed. If bed-sores form, they should be washed with a solution of Sulphate of Zinc, from gr. x., to gr. xx., to the ounce of water, and a dressing of mild Zinc ointment applied, the pressure being removed; this is generally sufficient for a cure.

If the disease exhibits a tendency to yield during the latter period of its progress, excretion should be aided by *mild* diaphoretics and diuretics, though under no circumstances, must an additional amount of heat be applied to hurry their action. As soon as secretion commences, Quinia may be given in increased doses with advantage. Convalescence must be managed with great care, when the patient has been thus prostrated. Nourishing food of easy digestion, taken in small quantities, with gentle stimulants and tonics, pure air, light, and sunshine, are required. As convalescence becomes established, animal broths, with easily digested solid food, may be taken, but strictly prescribed by the physician, as to kind, quantity, and frequency.

TYPHUS FEVER.

This form of fever is undoubtedly different from any of the preceding, as it is determinate in its course, and presents a regular succession of all the febrile changes, among the most prominent of which is the appearance of a characteristic cutaneous eruption. Though there is, from the beginning, a marked tendency to *sepsis* of the blood, yet the fever may pass through all its stages without that manifest putrescency noticed in the latter stages of typhoid fever; this, however, is rare.

CAUSES.—The exciting cause of true typhus is undoubtedly an *animal miasm*, generated by the congregation of a number of persons in close apartments, without regard to cleanliness, as in jails, hospitals, ships, and the crowded and ill-ventilated quarters of large cities; or by the disease itself, the emanations from patients suffering from it, being capable of propagating it to others. The miasm contaminates the air, and infects the healthy frame through the respiratory organs, either directly as it proceeds from the morbid source, or indirectly by means of substances capable of retaining it for a time and of giving it out upon exposure to air. The predisposing causes are all those that weaken and debilitate the system, even if this debility is but temporary. Thus, as above remarked, the emanations from a patient suffering from the disease being capable of propagating it, no person should visit such patients, or remain long with them, if suffering from but temporary prostration. The disease is not only contagious, but it is said that a “regular and fully developed attack seems to prevent a second, for many years afterward, if not forever.” The stage of *incubation*, or time from exposure to the cause and the full development of the fever, is usually from three to seven days, or even, sometimes, two or three weeks; but occasionally the cause being very intense, the attack may take place immediately on exposure.

SYMPTOMS.—The symptoms of the *forming* stage are similar to those in other forms of fever, indicating gradual arrest of function and nervous prostration. The *invasion* of the disease is marked by creeping sensations on the trunk and back, followed by shiverings, paleness of the surface, cutis anserina, heaviness and giddiness of the head, and more or less pain in the back and limbs; frequently there is considerable thirst. In a short time, these cold sensations are alternated with

flushes of heat, which increase until reaction is permanently developed.

With the full development of reaction, the pulse becomes full and strong, though sometimes exhibiting evidences of oppression from the commencement; the countenance is flushed, the head confused, heavy or giddy, and the skin hot and turgid. The urine is scanty and high-colored, the bowels constipated, with frequently nausea and vomiting. After a restless night, we find that the heat of the skin has increased; there is still farther arrest of the secretions, but the nausea and vomiting have ceased. The weight of the head changes to stupor, with frequently *tinnitus aurium*, the giddiness has increased, and frequently the upright position can not be borne.

By the third or fourth day a *catarrhal* affection, peculiar to this fever, is developed. The eyes become red, the mucous membrane of the nose, fauces and mouth are tumid and red, deglutition is difficult and painful, there is tightness and oppression of the chest, with frequently cough; both hypochondria are tense and painful. The patient is averse to making the slightest exertion, is impressed with difficulty, reasons slowly, and is tardy in his answers; the tongue is generally protruded with difficulty, and is tense and tumid, uniformly dark-reddened, and coated with a dusky grayish brown coat, or entirely free from coating, but red and glistening.

Shortly an exacerbation occurs, which is sometimes preceded by epistaxis, and partial relief of the cerebral symptoms. About the sixth day, the surface of the body becomes turgid and of a somewhat dingy-red, and the eruption appears. "It is of a florid, reddish, or reddish-pink color, disappearing on pressure, but soon returning when pressure is removed. This circumstance is sufficient to distinguish it from petechiæ. The more exuberant resembles the measles, and has been mistaken for them; but it is more papillar, and rougher to the touch, being sensibly elevated to the eye; and although sometimes grouped or crowded, it does not coalesce so much as measles, but each papilla is more or less separate." On the second day, another exacerbation occurs, followed by a slight remission of a few hours duration, when the nervous stage of the disease is introduced.

The turgidity of the skin disappears, but the surface is still dingy-red, and the heat increased; the skin is dry, shriveled,

and the epidermis brittle; petechiæ, or slight extravasations of blood under the cuticle, and frequently miliaria, make their appearance. The catarrhal symptoms all disappear, the breathing is free, but frequent, and the cough ceases, but is succeeded by more or less singultus. The tongue becomes parched and shrunk, and, if loaded, of a dark-brown or black color, or if clean, is red, smooth and glistening, resembling raw beef. The thirst is increased, but the torpor is often so great that the patient does not ask for drink, but takes it eagerly when offered; swallowing is impeded, owing to dryness of the mouth. The pulse is generally full and free, and not very frequent, but imperfect contraction of the artery may be noticed, after the heart's impulse. The bowels now become disordered, with frequent, loose, fœtid discharges, sometimes accompanied by pain in the bowels, and flatulent distension.

With the continuance of the disease, we notice an increased suppression of muscular power, and an increase of involuntary motion, as tremors, subsultus tendinum, and slight convulsions. There is impairment of the senses, deafness, defective vision, smell and taste. Typhomania makes its appearance, the patient dreams without being asleep, talks deliriously, is occupied with his internal impressions, and is with difficulty impressed by external objects.

The symptoms of the *crisis* are thus described by Copland: "At the end of the thirteenth day a more serious exacerbation than any former one takes place; the heat is more glowing, the arteries pulsate more strongly, the brain is more affected, and the stupor passes into sopor. In twelve hours afterward, and on the fourteenth day, the parched skin shows a tendency to perspiration. In some cases slight epistaxis occurs, with relief to the head; the nostrils become moist; the tongue, at the point and edge, moist, clean and red; and perspiration more copious and general. A free expectoration often takes place, especially if the chest has been affected. When the perspiration is salutary it is uniform, not clammy, has a peculiar smell, and occurs during sleep. The stools are now copious, loose and offensive; and the urine plentiful, muddy, high-colored, and deposits a copious sediment. With these changes, or in a few hours afterward, the patient seems as if he had awakened from a dream, or from a state of intoxication; and with the return of complete consciousness all the severe symptoms abate. A sense of fatigue and weakness, soreness of the

whole body, pale, hollow countenance, giddiness, deafness, and tinnitus aurium, drowsiness, or frequent inclination to sleep, tendency to perspire, quick pulse, and acceleration of it upon slight irritation or exertion, unnatural taste in the mouth, whitish tongue, etc., remain for six or seven days after the crisis, these symptoms gradually disappearing, the tinnitus aurium last of all."

If complications should arise during the progress of the disease, all the symptoms will be aggravated; it is not, however, so frequently complicated as the preceding forms of fever. The complications are generally of an inflammatory character, and the symptoms tolerably well marked.

POST-MORTEM EXAMINATION. — Dissection shows the blood dark, black, and diffuent, very rarely coagulated; sometimes, however, black clots are found in the larger vessels, and more or less softening of the heart. The disease of Peyer's glands, noticed in the last form of fever, is not found in this disease. The skin frequently presents petechiæ and vibices, and dark blotches, or even gangrenous eschars and sphacelus are met with upon parts continually pressed by the weight of the body. If any part has been affected by inflammation, the attendant lesions will be noticed on examination.

DIAGNOSIS. — The diagnosis is not difficult, as will be seen from the above symptoms. The high character of the febrile reaction, with the stupor of the nervous system; the catarrhal affection, with turgidity and dusky discoloration of the skin; the exacerbations, and appearance of eruption; and the peculiar symptoms of the *nervous* stage, are sufficient to determine the character of the disease.

PROGNOSIS. — This is the severest form of continued fever, and the prognosis will not, therefore, be as favorable as in others. If prompt treatment in the early stage is adopted, the fever may be arrested; but if it has run for several days, medicine can only aid the natural crisis at about the fourteenth day.

TREATMENT. — In most respects the treatment heretofore named for typhoid fever will be the most appropriate for this. In fact, in all except the treatment for the arrest of the disease, it will be the same, and therefore does not need repetition. I should not be willing to say positively that the disease can be arrested, as my experience in its treatment has been limited; still, I believe that it can, as above stated.

The abortive plan, adopted in typhoid fever, may be pursued here; the administration of the special sedatives to reduce the frequency of the pulse, assisted by the alkaline sponge bath and friction; then the employment of diaphoretics and diuretics, followed by Quinia and Opium. Free evacuation of the bowels, by unirritating remedies, is indicated at the commencement. I can better illustrate the treatment by reporting two successful cases.

John R., aged 13, a stout, robust boy, never was sick, and of healthy parentage. His grandfather, aged 58, had well marked typhus fever, which, from unbelief in physicians, was allowed to run into the nervous stage before I was called, having progressed eight days; he lived until the twenty-sixth day, marked putro-adynamic symptoms being present for the last eight days, with vibices, and gangrenous eschars on parts suffering from continued pressure. The boy, young as he was, was in almost constant attendance upon the old gentleman, until three days before his death. He was then attacked with a slight chill, lasting about two hours, febrile reaction came on, the heat of the trunk was intense, the face flushed and dark, but the extremities were cool; the nervous system was entirely prostrate, the stupor being so great that no intelligible answer could be obtained to my questions. I immediately had a kettle of water heated, and strongly saturated with mustard; woollen cloths were wrung out of this, and applied to the lower and upper extremities, bottles of hot water and hot bricks being used to continue the heat; a sinapism was applied the entire length of the spine. A strong infusion of the Compound Powder of Lobelia and Capsicum being prepared, I commenced its administration in doses of a teaspoonful every five minutes, giving with the first dose Podophyllin gr. ss., Jalap. gr. v. The emetic infusion was continued for two hours before vomiting came on, which was assisted by Black Pepper tea; the emesis was thorough, and attended by complete relaxation, slight perspiration, an equal circulation of the blood, and return of consciousness. The cathartic operated freely in about two hours afterwards. Though the severest symptoms had passed off, the patient was as much prostrated as he would have been by a week's severe illness. Quinia, gr. iij., Tannic Acid, gr. j., was then administered every three hours, until three doses had been taken, afterward, three doses per day; an infusion

of *Asclepias Tuberosa* was given freely, and heat continued to the lower extremities. The patient was able to sit up the fifth day. Now this might not have been typhus fever, and yet from the boy being so closely confined with a person suffering from undoubted typhus, it was reasonable to suppose that it was the same disease.

The second case likewise originated from contagion, the young man having been in attendance on the same patient. In this case, the premonitory symptoms existed for three or four days, terminating in a marked chill, which was followed by as high febrile action as I ever witnessed, with the same stupor and lurid appearance of the countenance. In this case I directed Tinct. Verat. Viride, in doses of three drops every hour in infusion of *Asclepias Tuberosa*, the latter to be taken freely, the alkaline sponge bath, and brisk counter-irritation to the spine. Ten hours afterwards the fever had not abated, the skin being intensely hot, I used the *cold, wet sheet pack*, continuing the sedative; in a short time the heat abated, the pulse was reduced in frequency, when Quinia was administered as before, the sedative being continued, and the patient convalesced readily.

I am just as well satisfied, however, that if the fever continues beyond the seventh day, the abortive plan of treatment will be a failure. The treatment named for the latter stages of typhoid fever should therefore be adopted, being governed entirely by the condition of the patient.

ERUPTIVE FEVERS.

This class of diseases is propagated by a *specific contagion*, which, gaining access to the blood, generates the same specific virus, and is then thrown upon the surface in the form of an eruption. These diseases are most frequently contracted by the inhalation of gaseous exhalations from a patient suffering from the disease, or from the discharges, and also by personal contact, the morbid material being absorbed from the skin. The most of them may likewise be communicated by *inoculation*, or the introduction of the *virus*, or even the blood of a patient suffering from disease, under the epithelium by puncture, or from any part of the body, if there is an abrasion. They are not only contagious, but they sometimes become *epidemic*, which is undoubtedly occasioned

by some change in the constitution of the atmosphere, inappreciable to us, but which favors the spread of the specific poison. These affections differ from all other forms of fever, in that an attack protects the individual from ever having the disease again, even though being exposed to the cause; to this there are some rare exceptions.

Liebig thus accounts for the disease, and its protective influence: "When a quantity, however small, of contagious matter, that is, of the exciting body, is introduced into the blood of a healthy individual, it will be again generated in the blood, just as yeast is produced from wort. The condition of transformation will be communicated to a constituent of the blood; and in consequence of the transformation suffered by this substance, a body identical with or similar to the exciting or contagious matter, will be produced from another constituent substance of the blood. The quantity of the exciting body newly produced must constantly augment, if its further transformation or decomposition proceeds more slowly than that of the compound in the blood, the decomposition of which it effects. * * * In the abstract chemical sense, reproduction of a contagion depends upon the presence of two substances, one of which becomes completely decomposed, but communicates its own state of transformation to the second. The second substance thus thrown into a state of decomposition is the newly-formed contagion. * * * When the constituent removed from the blood is a product of an unnatural manner of living, or when its formation takes place only at a certain age, the susceptibility of contagion ceases on its disappearance. The effects of *vaccine* matter indicate that an accidental constitution of the blood is destroyed by a peculiar process of decomposition, which does not affect the other constituents of the circulating fluid."

It will not be necessary to refer again to the causes of these eruptive fevers. It might be remarked, however, that some persons are exempt from this influence through life; others may be exempt from it at certain times, and thus be exposed several times and not be affected by the contagion, but afterwards upon exposure the disease will be contracted.

In some cases the influence of the contagion does not cease with the formation of the specific virus, but originates a septic decomposition of the blood, giving rise to putro-adynamic symptoms, which frequently result in death, sometimes even before the appearance of the characteristic eruption.

VARIOLA.

SMALL POX.

SYMPTOMS.—The symptoms depend much upon the constitution of the patient, the intensity of the cause, and the state of the atmosphere, whether epidemic or not. The disease has been divided into several varieties by authors, according to its intensity; we need notice but two: the *discrete* and *confluent*; the first mild, the points of eruption being distinct and separate, the second severe, the eruption being profuse, and so closely situate as to run into one another. In describing the course of the disease, the symptoms of the discrete will be first named, and followed by the confluent. We divide the disease into three stages: 1st, of *incubation*; 2d, of *maturation*; and 3d, of *decline*.

Stage of Incubation.—This comprises the period from exposure to the cause, to the development of the chill, and may be from seven to sixteen days, usually about twelve days when the disease is contracted in the natural way. At the time of exposure the patient may feel unpleasantly impressed by the morbid poison, yet frequently no notice is taken of it. Generally about the sixth or eighth day the disease begins to manifest itself by a sensation of weariness, languor, and irregular appetite and excretion. These symptoms increase until the day preceding the chill, the patient now feeling so bad that he can not follow his usual employment; in addition to the symptoms named, the patient now complains of soreness of the muscular tissues, pain in the back, weight and heaviness in the head, and more or less nausea.

The chill varies in intensity, sometimes it is but slight; chilly sensations pass over the body, which after some time are attended with flushes of heat; more frequently there is well-marked coldness of the surface, and again a well-developed rigor. The chill varies in duration from two to four or even more hours. During this period the pain in the back and limbs becomes more marked, and there is sometimes nausea and vomiting.

With the development of febrile reaction, the skin becomes hot, the pulse accelerated, the bowels constipated, the urine scanty and high-colored, pain in the head, with greatly increased pain in back and limbs; sometimes the pain is so intense that the patient can not get rest in any position. In

the mild or discrete form, the fever may be about as high as common continued fever, though in mild cases, it is sometimes very slight. In the severe, *confluent* form of the disease, the fever is generally intense, the pain severe, and the patient extremely restless; frequently delirium makes its appearance on the second or third day. In some fearfully intense cases there is marked torpor of the nervous system from the beginning, which is speedily succeeded by low delirium or stupor; the skin being hot, pungent, turgid, and dusky, or the heat confined to the trunk, the extremities being cold.

At the end of forty-eight hours from the chill, the eruption usually begins to manifest itself in the form of minute, reddened papule, at first on the face, wrists, breast, and where the skin is thin and delicate, gradually extending over the entire surface, becoming complete about the end of the third or fourth day. When the fingers are passed over these papulæ, they feel like small tubercles in the true skin, about the size of a pin's head; a minute vesicle forms on the apex of each within twelve or twenty-four hours after its appearance, which, enlarging, forms the small pox pustule. In the discrete form of the disease, these papulæ are not very closely set together, sufficient room existing between them for their full development; they are usually grouped together in threes or fives, with considerable space between the groups. In the confluent form they are closely set together, being very numerous, so that when developed they press against one another, giving rise to erosion of their walls and final coalescence. In the mild form, the fever becomes much mitigated upon the appearance of the eruption; but in the other there is frequently little or no decrease in the fever, delirium being present in many cases.

Stage of Maturation.—This stage embraces the period from the appearance of the eruption to its full development and rupture, usually eight or nine days. The course of the eruption is as follows: The small vesicle increases in size as it fills with a clear whey-colored fluid, and is bound down in the center, giving it an umbilicated appearance. About the fourth or fifth day of the eruption, a red areola appears around the base of each vesicle; commencing intumescence of the skin may be noticed, and shortly the tissue that held down the center gives way, and the eruption becomes pustular, and of a somewhat conical form. From the fifth to the eighth day the

pustule matures, the surface becoming rough and yellow, and the cuticle breaking allows a portion of the contents to ooze out, which desiccating, forms the scab. At the commencement of maturation the tumefaction of the skin increases; in the confluent form, the swelling being so great as to close the eyes and efface all the features. The desiccation of the scabs is complete from the eleventh to the sixteenth day of the eruption, when they commence to fall off.

During the period of maturation the symptoms vary greatly. In the mild or discrete form, the fever is never very intense, though it may be continuous, frequently being intermittent, appearing only in the after part of the day. In the confluent form, the fever is more or less intense and continued; frequently there is continued restlessness or delirium. In severe cases there is stupor or delirium; the skin is hot, dry, and hard; the eruption comes out on the mucous membranes of the mouth, nose, pharynx, and sometimes larynx or bronchii, attended with tumefaction. This gives rise to difficulty in deglutition and respiration, which is increased by the secretion of a tough, viscid, and ropy mucus, requiring a constant exertion on the part of the patient to keep the passages free. If this affection of the mucous membrane is severe, we notice symptoms of gradual asphyxia, luridity of the lips, duskiness of the countenance and sometimes of the entire surface, with rapid prostration.

In some extreme cases, in addition to the symptoms of prostration above named, the papulæ when they first make their appearance become dusky, the skin livid, the pulse sinks, extremities become cold, and the patient dies before the formation of the pustules. In other cases, the areola becomes purplish and livid, and instead of normal maturation the pustules are filled with a sanious fluid, or blood, petechiæ make their appearance between the points of eruption, symptoms of prostration ensue, and the patient speedily dies.

On the eighth day of the eruption, or the eleventh of the fever, secondary fever ensues. This, in the discrete form, is not very severe; but in the confluent is generally as high as it was at first. In the last case, it usually lasts from two to four days, when it gradually declines; during this time there is frequently delirium. In some cases, this secondary fever is extreme, accompanied by low delirium, a rapid, weak pulse, and great prostration, when the patient is in imminent danger.

Sometimes complications arise during this secondary fever, as inflammation of some part of the respiratory apparatus, the brain, mucous membrane of the bowels, etc., which greatly aggravate it, and may prolong it for an indefinite time.

Stage of Decline.—The fever gradually disappearing, secretion is established from the skin and kidneys. The tumefaction goes down, and desiccation of the scabs progresses. About the fourteenth day of the eruption the scabs begin to be detached, but are not entirely thrown off for two or three weeks. If there has been no ulceration of the skin, the site of the pustule is of a dark, purplish color, giving the skin a mottled appearance; this gradually fades away and disappears in six to eight weeks, though upon exposure to cold they can be noticed frequently for six months. In many cases, at the time of the rupture of the pustule, ulceration is established at its base in the true skin, which causing a loss of structure, and there are pits left in the skin marking the site of the pustule. As a general rule, the severer the disease the longer the convalescence, which presents similar symptoms to that of other fevers.

Complications.—Small pox may be complicated with any disease, but generally they are of an inflammatory form. The principal complications are of the mucous membrane of the bronchial tubes, the substance of the lungs, the bowels, and cerebro-spinal nervous system, the symptoms being generally well marked. Affections of the eyes are not infrequent; but, with the exception of inflammation, treatment will have to be postponed until after the disease has run its course.

POST-MORTEM EXAMINATION.—If a person dies with small pox, it is either because of septic decomposition of the blood, or of some complication which has arisen during the progress of the disease. In the first instance, we find the blood dark and diffuent, with great softening of the tissues, so much so, that I have seen cases in which they could not be washed or dressed, but had to be wrapped in the sheet upon which they died. The external appearance varies, sometimes the eruption is exceedingly profuse, but maturation has progressed normally; at others the pustules are filled with sanies, are dark colored, with petechiæ or vibices between the pustules, and sloughing of parts pressed upon. In the case of complications the local lesions will vary according to the character of the disease.

DIAGNOSIS.—In the early stages of the disease the diagnosis

has to be made between this and measles and scarlatina. This is not very easy, yet as measles is almost always attended by catarrhal symptoms, cough and watering of the eyes, this will be of some assistance. Upon the appearance of the eruption the distinction is not difficult, the papule of small pox being firmer and deeper seated than measles, while in scarlatina there is merely the exanthematous redness. From varicella, the diagnosis is made by the mildness of the fever, the vesicles full of serum on the first day of eruption, their irregular appearance, absence of the central depression or umbilicated appearance, irregular and oblong form, and formation of crusts by the fifth day, at which time small pox is just forming its areola and commencing to mature.

PROGNOSIS.—The prognosis is favorable, except in those cases in which evident symptoms of disorganization of the blood make their appearance, or those complicated with severe local disease.

TREATMENT.—This disease has a determinate course to run, and therefore can not be arrested. There is no doubt, however, but what it may be modified by treatment, and rendered comparatively mild, and its duration shortened. If the doctrine of contagion heretofore advanced is true, means that would lessen the intensity of the febrile exacerbation, would prevent an increased generation of virus, and the same would be accomplished by so keeping the surface that the eruption could readily be thrown out. Now whether these are facts or not, I know that when this is accomplished, the eruption is comparatively light.

Before the eruption, as we have no positive means of determining that it is small pox, we would treat it the same as any other fever. For instance: if there was nausea, with indications of morbid material in the stomach, an emetic should be employed; if there was constipation, a mild cathartic. The special sedatives should be employed to lessen the febrile reaction, assisted by the frequent use of the alkaline sponge bath. The patient should not be kept too warm, neither should heating remedies be employed to cause determination to the skin. If there is much restlessness, sleeplessness and delirium, Opium may be used with advantage.

If such course is pursued few severe confluent cases will be met with. *All heating and irritant applications to the skin, and internal remedies calculated to produce determination to the sur-*

face, will increase the eruption and aggravate the disease. When the eruption makes its appearance, we continue the same treatment, though the sedatives will now be used in small doses. The sponge bath, two or three times daily, should still be used, and continued until maturation is complete; Castile soap and warm water is the best that can be used. Those who have never adopted this plan would be surprised to see the influence that is exerted upon the system by keeping the skin thoroughly cleansed. To prevent pitting, the room should be kept dark, and the face not exposed to the action of heat and light, in addition, all that is required is the free but gentle use of soap and water, and the application of sweet oil, when the pustules commence to rupture, to keep the skin soft. During the period of maturation the patient needs constant support, and should therefore have a light and nutritious diet; corn-meal gruel is the best article that I have ever employed. If strict cleanliness has been observed, there will be but little secondary fever.

In those cases in which marked lividity of the surface presents itself, either before or at the time of the eruption, with great nervous prostration, an emetic should be administered, and the warm bath prescribed. When there are indications of serious lesion of the blood, those antiseptic agents named under the head of typhoid fever, should be resorted to. If any complication arise, it should be treated as named under the particular affection, as the treatment will not generally interfere with that for the eruptive fever.

VARIOLOID.

This is but a modified form of small pox; the system having been partially impressed by the vaccine disease, the variolous affection is very mild. The symptoms are those of the mildest form of the discrete small pox, though its course is shorter and more irregular. The treatment should be the same as for variola.

VARIOLA VACCINA.

COW POX.

The existence of the vaccine disease in the cow and its prophylactic influence against small pox, was discovered by Dr.

Edward Jenner, and communicated to the world between the years 1775 and 1798. Dr. Jenner first noticed whilst studying medicine that in the dairy districts in Gloucestershire there was a current opinion that certain persons who had contracted a pustular disease from the cow were exempt from small pox. His mind was strongly impressed by the fact, and he commenced its investigation. It was not until 1796, however, that he became sufficiently convinced to attempt the propagation of the disease by inoculation. His first case was entirely successful; the disease was transmitted, and two months afterward upon being inoculated with small pox virus, it was found not to have the slightest influence. He published the results of his investigations in 1798, but they were received with incredulity by the mass of the profession; and met with the most bitter opposition from many. The evidence, however, soon became so strong that vaccination was adopted with eagerness as an invaluable boon, warding off as it did the most fell disease of that period.

Cow Pox in the Cow.—The disease in the cow is of rare occurrence, and hardly ever manifests itself except where cattle are collected together in herds. It was stated by Jenner that the disease of the cow originated from the *grease* of horses, being communicated from the heels of the horse to the udder of the cow, by those having the care of them. Whether this was the cause or not, it is a well-proven fact, that the disease of the horse can be propagated to the cow, and thence to man, producing the vaccine disease; and, farther, that inoculation with the matter from the horse will prove a prophylactic, if it is not the same disease. The *Edinburg Journal of Medical Science* states: "That the matter in use at Vienna, from 1799 to 1825, was partly British vaccine and partly originated from the grease of a horse at Toulon, without the intervention of a cow. The effect was so similar in every respect that they were soon mixed; that is to say, after several generations, and in the hands of innumerable practitioners, it was impossible to distinguish what was vaccine and what was equine." According to Dr. Jenner, the true cow pox shows itself upon the nipples of the cow, in the form of irregular pustules. At their first appearance they are commonly of a palish-blue color, or rather of a color approaching to livid, and surrounded by an erysipelatous inflammation. They frequently degenerate into phagedenic ulcers, the ani-

mal appears indisposed, and the secretion of milk is much lessened. The cow is subject to other pustular sores on the nipples, which are of the nature of common inflammation, and possess no specific quality. These are free from all bluish or livid tint, and no erysipelatous inflammation accompanies them. They desiccate quickly, and create no apparent disorder in the animal.

VACCINATION.—This is an extremely simple operation, and yet from want of care on the part of the practitioner, failure to introduce the lymph is of quite frequent occurrence. Vaccination may be performed with the lymph taken from the vaccine vesicle from the fifth to the ninth day, and this is probably the most effectual way of transmitting the disease. It is generally effected, however, from the scab, it being macerated with water, and thus introduced, or a minute portion of the scab is inserted under the skin, and being rendered soluble by the fluid of the part, is thus absorbed. In performing vaccination with the lymph or macerated scab, we dip the point of the common lancet in the matter, and having exposed the arm to the insertion of the deltoid, we make a number of small punctures, just sufficient to elevate the epithelium, when an additional quantity of the virus can be applied and pressed into the punctures with the lancet; a piece of adhesive plaster should then be applied to protect the part. In introducing the scab, the lancet should make an incision so as to elevate the epidermis in the form of a flap, the piece being introduced it can be retained with adhesive plaster.

PRESERVATION OF VACCINE MATTER.—Vaccine matter is extremely liable to spontaneous decomposition, and can not be kept longer than from two to six months under the most favorable circumstances. The lymph may be preserved for several days, by placing it between two pieces of ground glass, fitting each other accurately, or by cutting pointed pieces of quill and dipping the points in the lymph two or three times, allowing it to become dry each time, and keeping them from the action of the atmosphere; in this case vaccination is performed by making a small puncture with the lancet, and inserting the pointed extremity of the quill, which should remain in the puncture ten or fifteen minutes. The scab is best preserved by taking two flat pieces of white wax, excavating upon their surfaces a sufficient cavity for the reception

of the scab, and then applying them closely together; in order to render the protection more effectual a warm iron may be passed around the edges, and afterward three or four coats of collodion or even glue may be applied.

VARICELLA.

CHICKEN POX.

SYMPTOMS.—This is the mildest of the eruptive fevers, rarely, if ever, endangering life, and requiring but the simplest treatment. Like the other diseases of this class, it is propagated by specific contagion, the period of inoculation being from six to nine days. The disease is frequently associated with the epidemic prevalence of small pox, and hence has been supposed by some to be a modification of that disease. It usually commences with a tolerably well-defined chill; fever succeeds of a more or less marked character, and continues with remissions for twenty-four or forty-eight hours before the appearance of the eruption. With its appearance the fever abates, and the little patient feels quite comfortable.

The eruption appears first as small, red, slightly elevated spots usually of an oblong figure, with a flat and shiny surface; in a few hours a transparent vesicle is formed upon this, which upon the second day is filled with whitish lymph, and upon the third, having obtained their full size, about one-fourth of an inch in diameter, straw-colored. Many of them are ruptured by the fourth day; those which continue become puckered at their margins, and the lymph concreting, a brownish scab is formed, which is detached the seventh or eighth day. Many times there are successive crops of eruption, so that the disease may be observed in all its stages in the same individual, and the time is consequently prolonged.

DIAGNOSIS.—This affection is distinguished from small pox, the only disease with which it could be confounded, by the formation of the vesicle the first day of the eruption, no depression in the center, and their rapid maturity.

TREATMENT.—In this case, we direct a general sponge bath, followed by a hot foot bath, and the administration of some mild diaphoretic infusion, as of *Asclepias*, *Eupatorium*, *Hed-eoma*, etc. If the bowels are costive, it is well enough to

administer a mild cathartic; or, if the fever is high, R, Tincture Veratrum, gtt. x; Essl. Tincture Asclepias f3ss; Aqua 3iij; M., and give a teaspoonful every hour to a child five or six years old. To relieve the itching that is so intolerable in some cases, R, Glycerine, Rose water āā 3v; Subnitrate Bismuth; gr. xxx; M. and use as a local application.

RUBEOLA.

MEASLES.

This is said to be a disease of childhood, but experience teaches us that the adult is just as liable to contract it, and that it is dangerous in proportion to the age of the patient. Like the other eruptive fevers, it is propagated by contagion, and one attack gives immunity from the disease ever afterwards. The period of incubation is from seven to fourteen days.

SYMPTOMS.—Measles usually commence with a chill, sometimes slight, sometimes amounting to a rigor; to this succeeds catarrhal fever; there is frequent sneezing, with stuffing of the nose, redness, watering and turgidity of the eyes, sensibility to light, hoarseness, and dry, troublesome cough. The appetite is lost; tongue coated white, and loaded at base; unpleasant taste in the mouth; sometimes nausea and vomiting; and general arrest of the secretions. The fever is sometimes intense, with severe pain in the head, back and limbs, and great irritability; it is remittent in its character, the exacerbation being in the after part of the day.

Upon the third or fourth day from the first commencement of the disease, the eruption makes its appearance; first, on the face, neck and breast, then on the arms, hands and abdomen, and last on the lower extremities. At this time there is marked turgidity of the countenance, particularly of the eyes; the tip and edges of the tongue are red, its center and base loaded with a dirty fur, and the fauces exhibit reddened patches, resembling the cutaneous eruption. The eruption at first resembles very much the bites of fleas; as they become developed, they are elliptic and irregular in form, slightly elevated above the skin, of a crimson or lively red color which is gradually shaded off into the adjacent skin, and slightly rough to the touch; when pressed by the finger they moment-

arily lose their color, which returns rapidly upon removing the pressure. The more acute the fever, the greater the eruption, and the more intense the disease.

With the appearance of the eruption, the cough is many times markedly increased, and becomes very troublesome. There is more or less difficulty of breathing, which sometimes depends upon determination to or congestion of the larynx, at others, of the bronchial tubes, and again of the parenchyma of the lungs. During the period of efflorescence, the fever usually continues unabated, indeed, in many cases, all the symptoms become aggravated as the disease progresses.

On the seventh or eighth day from the commencement, the eruption begins to decline, and the febrile symptoms to disappear, with reëstablishment of secretion, and furfuraceous desquamation of the epidermis.

Measles are severe in proportion to the extent of involvement of the respiratory apparatus, and hence constant care in the examination of these complications is necessary. The *sequela*, which are so much dreaded, are chronic inflammation of the larynx and bronchi, or irritability of the pulmonary tissue, causing determination of blood, and eventuating in phthisis. The disease undoubtedly affects the constitution of the blood in many cases, the reparative or reproductive power being so injured that the patient is feeble and liable to any cachectic disease.

DIAGNOSIS. — Measles is diagnosed from *miliary fever* by the phlyctena containing a serous fluid in that affection; from in the early stage, by the catarrhal symptoms, and larger *urticaria* by the itching and larger papulæ; from *small pox*. stigmata of measles; from *scarlet fever* by the smooth, scarlet redness and prominent affection of the throat.

TREATMENT. — Notwithstanding measles has been attended with marked fatality for the last few years, I claim that the treatment is simple and easy. We desire to shorten the period of precursory fever, to get an early appearance of the eruption, and guard against irritation of the mucous surfaces. To do this, I direct, in many cases, simply an infusion of one part Lobelia herb to three parts of Asclepias or Pennyroyal. The sponge bath should be used sufficiently often to keep down the heat of the surface, and the hot foot bath about the time the eruption is expected. Or, R, Tincture Veratrum, gtt. xv; Tincture Gelsemium, f3j; Essential Tincture Lobelia.

℥ss, Aqua, ʒiv; M., and give a teaspoonful every hour until the fever abates, and in smaller quantities and at longer intervals afterwards.

In those cases in which the eruption is tardy in making its appearance, with much affection of the respiratory apparatus, an emetic of the Acetous Emetic Tincture will prove highly serviceable, as it will also in those cases in which there is retrocession. For the relief of the irritation of the respiratory mucous membrane, and harassing cough, which is sometimes so prominent a feature of the disease, various agents are employed; I have used the Compound Tincture of the Oils of Lobelia and Stillingia with advantage, in doses of one drop on a lump of sugar, every three hours, and a free application of the same to the throat or chest. If there is marked dryness of the respiratory passages, the nauseant expectorants must be employed; and here the Acetous Tinctures of Lobelia and Sanguinaria, with simple syrup, will be found preferable. Demulcents are always of benefit, and should be employed as drinks. Inhalations prove beneficial, the vapor of water, of an infusion of Lobelia, or of Vinegar, or of the narcotics, Opium, Belladonna, Hyoseyamus, etc., or the sedatives. A moist atmosphere is of the utmost importance, hence a person suffering from measles should never be kept in a stove-room, unless great care is employed to keep the air moist. For the cough I have used with advantage, R, Syrup Prunus, ʒiij; Tincture Lupuli, Syrup Lobelia, āā ʒij; Tincture Hyoseyamus, ʒi; M., a teaspoonful every hour or two hours to a child five or six years old. Or, take of Trillium Pendulum and Aselepias, āā, make a strong infusion by macerating with gentle heat for three or four hours, and express; add to this Syrup of Lemon to render it pleasant, and administer ad libitum.

In some cases we observe marked depression of the system, entire loss of appetite, furred tongue, more or less fissured, with great dullness. In this case we will find, on examination, deficient secretion of urine, which if it continues will lead to a fatal termination. Here, an infusion of Hair Cap Moss, or other mild diuretics, with counter-irritation to the loins, will be followed by marked relief. Much care is required after the disease has subsided in order to confirm convalescence. The clothing should be warm, and the child not permitted to expose itself to draughts of air. If this is attended to, and the secre-

tions kept free, there is no more danger from measles than from any other disease.

SCARLATINA.

SCARLET FEVER.

This is essentially a disease of childhood, and few persons will take it after the age of twenty. Unlike measles, it is also milder, as the patient is older. It is propagated by specific contagion, either by inhaling the exhalations, or contact with the clothes of the patient. In some seasons it becomes epidemic; doubtless because the poison is so intense as to be propagated readily and at a considerable distance, and the condition of the atmosphere is favorable to the ready propagation of a zymotic disease. Scarlatina has been divided into three forms: S. Simplex, S. Anginosa, and S. Maligna, differing in their intensity, severity of symptoms, and fatality. In some seasons the disease will present the character of the first exclusively, in others it will be of the anginose form, and again every case will be malignant.

SYMPTOMS.—From six to eight days elapse after exposure before the disease makes its appearance, and it is usually ushered in with a chill. In *scarlatina simplex* the chill is not very well marked, and lasts but a short time. The fever following presents the common symptoms, increased heat of skin, arrest of secretion, frequent pulse, loss of appetite, etc. In the course of from six to twenty-four hours, the eruption makes its appearance in the shape of patches of efflorescence upon the face and neck, then extending to the body. If the eruption is minutely examined, it will be found to consist of an infinite number of small red points, the rose-colored ground being simply the base upon which they stand. Soreness of the throat, with slight difficulty of deglutition, appears at the commencement, though not usually severe, or accompanied with tumefaction. For nineteen to forty-eight hours after the appearance of the eruption the fever continues as before, but then rapidly abates, and in from three to five days the redness disappears, and is followed by branny desquamation of the cuticle.

In *scarlatina anginosa*, the chill is usually marked, there is nausea and vomiting, pain in the head and back, thirst, etc.

The fever which follows is intense, the skin is dry, husky, and burning, the eyes dry and painful, the face congested and tumid, bowels constipated, urine is scanty, frequently voided, and high-colored, and marked irritability of the nervous system. Soreness of the throat, with difficult deglutition is complained of from the first, and on examination we find the fauces tumid and red, and the tonsils somewhat swollen. The nares are frequently implicated with the angina, and there is consequent stuffing of the nose, with difficult respiration and consequent increased restlessness. The eruption sometimes makes its appearance during the latter part of the first day of fever, but more frequently not until the second or third day; about the third or fourth day it has reached its height. At the commencement there appears slight tumefaction of a portion of the surface, which gradually assumes a rose-red color, and the minute red points are developed. These patches increase in size until the greater portion of the surface is involved. During the eruption there is an expression of anxiety and suffering; the child is restless and uneasy, and sleeplessness which resists the usual means of rest, is caused by the heat and stinging of the surface and soreness of the throat.

The throat affection is here the most prominent feature; the soreness increases, the mucous membrane and subjacent tissue is engorged and tumid, and the secretion from the mucous follicles and salivary glands so viscid and tenacious as to cause great distress. In some cases, ulceration commences by the fifth or sixth day of the disease, and the secretion is difficult of removal and exceedingly offensive; occasionally the ulceration assumes a phagedenic form, and speedily terminates the life of the patient. Frequently enlargement of the cervical lymphatics commences from the third to the sixth day, and if not promptly treated terminates in inflammation and suppuration. The fever, under appropriate treatment, commences to abate when the eruption has made its appearance, and disappears entirely by the fourth or sixth day, when desquamation commences. As this progresses, the surface becomes paler, the epidermis exfoliating in whitish scales, or in large pieces when it is thick; sometimes desquamation is retarded for two or three weeks.

Scarlatina maligna might be divided into two kinds, the distinctive symptoms being marked. In the one case there is marked evidence of prostration from the commencement.

The chill is greatly prolonged, and the child seems dull and stupid, the countenance vacant or besotted. Febrile reaction comes up slowly, the body becomes hot, the heat being pungent, but the extremities are cold; the pulse is frequent, but soft and fluent, or else small and wiry. Frequently there is nausea and vomiting, sometimes diarrhœa. The tongue is broad, flabby, and covered with a foul, dirty mucus and the patient has difficulty in controlling its movements. The eruption makes its appearance slowly, the redness being more or less dusky. The throat affection possesses the same characteristics; there is difficult deglutition and respiration, the mucous membrane presenting a dusky, tumid appearance. Ulceration is of frequent occurrence, their surface being foul, the edges ragged, and a strong tendency to phagedœna. Enlargement of the cervical lymphatic glands is very common, with a strong tendency to the formation of a diffusive abscess, and, if the patient lives, to the formation of secondary abscesses. As the disease progresses, the symptoms are all of a typhoid character; there is the dark tongue, sordes on the teeth, feeble pulse, great oppression of the nervous system, tendency to diarrhœa, and tymphanitis, etc,

In the second case, the disease exhibits but few, if any, premonitory symptoms. The child is attacked suddenly; the chill lasting but a quarter or half an hour, is not well-marked, and is succeeded by the most intense febrile reaction. The skin is intensely hot, dry and husky; the mouth parched and dry; the eyes injected, dry, brilliant and painful. The patient is either delirious, or suffers such intense pain as to be almost unconscious of what passes around him. There is nausea and vomiting, the irritation being sometimes so intense, that nothing can be retained on the stomach. In these cases the patient is frequently exhausted by the intense reaction, and dies before the appearance of the eruption, or during the time that nature is trying to throw it on the surface.

In the two last forms of the disease, and sometimes in the simple form, we observe a want of power upon the part of the system to determine the eruption to the surface. In such case the skin appears tumid and dusky, there is tendency to coldness of the extremities, and marked oppression of the nervous system. In such case, prompt measures must be taken to bring the eruption to the surface, or the patient will die. Again, we observe cases in which the eruption comes out, but

from some cause it retrocedes; in this case the same alarming symptoms manifest themselves. In other cases, the anginose affection is so severe, that it seems that the patient has not sufficient power to carry on respiration; sometimes the difficulty depends upon the secretion of a viscid, tenacious mucus.

DIAGNOSIS.—Scarlet fever is diagnosed from other diseases of the skin by the rose-colored efflorescence, upon which are the innumerable small red points. A marked characteristic of the disease is the fact that the redness is effaced by pressure, and does not return for some little time. Thus, by taking a pencil or the finger-nail we can write our name, which remains for a moment, and then gradually fades out.

PROGNOSIS.—In the simple and anginose form of the disease, the prognosis is favorable. In the malignant form, unless the treatment is prompt and effective, the prognosis is unfavorable. In all cases, if the eruption becomes dusky, if conia or typhomania ensues, or if the tongue becomes brown and foul, it is unfavorable.

SEQUELÆ.—Among the most frequent of the sequelæ of scarlet fever, are diseases of the kidneys, consisting of simple exhaustion and want of power to secrete, chronic inflammation and albuminuria. In the first we notice a marked dullness and hebetude, the appetite is poor, the bowels irregular, marked debility and tendency to cachectic diseases, the blood being greatly impaired. In the second, the pulse is hard and frequent, the dryness and huskiness of the skin continues, there is pain and soreness in the back and loins, the appetite is poor, the tongue dry, whitish, and fissured. In the third, dropsy makes its appearance when the child is supposed to be convalescing. Continued disease of the throat, and irritability and enlargement of the cervical lymphatic glands is sometimes observed. Ozæna, with weakness and irritation of the eyes, and chronic disease of the ears, attended by purulent discharge and partial deafness, is not unfrequent.

TREATMENT.—In the treatment of this disease it is well to have some well defined line of action—to determine exactly how we can benefit our patient. We know, by experience, that the higher the fever, and the longer it continues before the appearance of the eruption, the greater the danger, and that the case also becomes critical in proportion to the amount of eruption and arrest of secretion. Thus, in all cases, it is good practice to use such means as will control the primary

fever, and favor the early appearance of the eruption. I have already mentioned, when speaking of small pox, that keeping the secretions free during this period lessened the amount of eruption, this is the case here; hence depurants are advantageous.

In the simple form of the disease, I usually order the *Veratrum*, with infusion of *Asclepias*, or other mild diaphoretic, and a small quantity of Chlorate of Potassa. The alkaline bath should be employed sufficiently often to keep down the heat of the skin, and render it soft and pliable, an infusion of Hair Cap Moss with Acetate of Potash being sufficient after the eruption has made its appearance. For the throat, I direct a gargle of a solution of Chlorate of Potash, a flannel cloth wrung out of cold Vinegar being applied to the throat.

In scarlatina anginosa, I put my patient on the use of Tincture of *Veratrum* and *Aconite*, in small doses, largely diluted, and frequently repeated. In addition, I direct for a child five years old, \mathcal{R} , Ext. *Belladonna* gr. x; Alcohol 3ij; Chlorate of Potassa 3ij; Hydrochlorate of Ammonia 3j; Syrupus *Aurantii* 3iv; M. Of this the dose is a teaspoonful every two hours, until the influence of the *Belladonna* is marked, then continue without that remedy. The alkaline bath should be used sufficiently often to remove the excess of heat; if the skin is very dry and harsh, with pungent heat, the oleaginous or glycerine friction, following with Castile soap and water, will prove advantageous. To the throat externally, I direct a flannel cloth wrung out of cold Vinegar, and covered with a dry one, and changed as often as necessary. As a gargle, use a saturated solution of Chlorate of Potassa, alternated with the Hydrochlorate of Ammonia. As soon as the eruption makes its appearance, use an infusion of Hair Cap Moss acidulated with Nitric Acid.

If the throat affection has become firmly established, with marked tumefaction, inhalations of equal parts of Vinegar and Water is beneficial. Demulcents used frequently, to remove the unpleasant sensation of dryness, are also important. If there is marked tendency to enlargement of the external lymphatic glands, I employ local applications of \mathcal{R} , Tincture *Lobelia*, f3iij; Tincture *Aconite*, Tincture *Arnica*, āā f3j; M. Or take a strong infusion of the *Lobelia* herb, and make a poultice of Wheat-bran; *Arnica* can be added if there seems to be a necessity for stimulation.

In the first case of scarlatina maligna described, I employ the Belladonna in the formula above named, with the Tincture of Xanthoxylum as a stimulant. Stimulant frictions, as of dilute Tincture of Capsicum, to the entire surface is highly important, and to the extremities it should be used of sufficient strength to stimulate free capillary action. At the end of the first twelve hours, usually, the special sedatives can be commenced, in small doses, and continued until the fever has abated. If, however, there is nausea, or if the prostration is extreme, the circulation being feeble, I employ the emetic, the Acetous Tinctures of Lobelia and Sanguinaria, equal parts, being preferable agents. The emetic, to be attended with favorable results, should be thorough; and its action prolonged until relief is obtained. In the second form of the disease described, nauseant doses of the Acetous Tinctures of Lobelia and Sanguinaria, repeated frequently, and continued until relaxation becomes manifest, and then carried to thorough emesis, evaporating lotions to the head, strong counter-irritation to the spine, and cloths wrung out of hot Mustard water, or dilute Tincture of Capsicum, is the only treatment I have found successful. This quiets the excessive reaction when, under the means named above, the eruption appears and the disease runs a regular course. In all forms of scarlatina, if after partial sedation is produced, there appears to be a want of power to carry on the natural processes of life, Quinia is an important remedy. There are cases in which the patient seems comfortable, but is worse towards evening; in such cases it is of marked benefit. If the eruption fails to make its appearance, or appears slowly, or shows a tendency to retrocede, or is dusky in color, or there is much prostration and torpor of the nervous system, I use the emetic. The Acetous Emetic Tincture is the best preparation, and it should be used thoroughly. In the first three cases named, I frequently apply a blanket wrung out of hot water and Mustard to the entire surface, as a pack, to stimulate capillary circulation.

When the mucous membrane of the throat is tumid and dusky, Tincture of Myrrh added to the gargle will prove beneficial. In cases of extreme congestion, or where from greatly increased secretion of mucus, respiration is interfered with, I use the emetic above named. It may be set down as a fixed rule in this disease, to which there are but few excep-

tions, that if alarming symptoms of any kind make their appearance from feeble capillary circulation, or congestion, as is generally the case, the emetic, by its revulsive and stimulating influence, is the best remedy that can be adopted.

The enlargement of the lymphatic glands is a source of much difficulty in this form of the disease, appearing frequently when the patient is apparently convalescent. The means previously named may be employed with advantage; if it fails, the swelling being indolent, a series of small blisters, as large as a quarter, around it, or, in some cases, one applied to the surface itself proves beneficial. A poultice of a strong infusion of Elder Bark and Bran is good, as is also one made with the decoction of Dogwood, or with new Beer; a poultice of pulverized Hydrastis, or this and Bayberry, equal parts, or of Sanguinaria and Wheat Bran, has also been successful. If it is manifest that suppuration will ensue, no good can result from means to promote resolution; speedy suppuration is desirable, and to promote it the common means may be employed, with the addition of such stimulants as will promote free circulation in the part. The great danger being in the formation of diffusive abscess, and purulent absorption, this must be closely watched. The bitter tonics, Quinia, stimulants, and Iron, should be freely used, and a bland nutritious diet recommended.

Convalescence must be managed with care in the severer cases, but the rules already laid down will be sufficient for the young practitioner; those older have the benefit of experience. The sequelæ will be spoken of under their appropriate heads.

CHAPTER II.

DISEASES OF THE RESPIRATORY APPARATUS.

The respiratory apparatus it will be recollected consist of the nares, larynx, trachea, bronchi, parenchyma of the lungs, and the investing serous membrane in the pleura. Each of these parts may be the seat of disease, either acute or chronic, or two or more parts may be involved at the same time. We diagnose these diseases by general symptoms, and by physical signs; the first, arising from change of function dependent upon the disease, and the influence of it upon the system, are never constant, and in some of these affections entirely insufficient to determine their character; the physical signs being palpable alterations of sound, movement, shape, etc., are always constant and unfailing. The consideration of physical diagnosis, therefore, demands a prominent place in this chapter.

PHYSICAL DIAGNOSIS.

Under this head might be comprised the *conformation of the thorax, respiration, cough, sputa*, and the information obtained from *percussion* and *auscultation*. Some of them will be considered with the general symptoms in the consideration of the disease, but it is well enough to study them in a group.

CONFORMATION OF THE THORAX.—As a general rule the healthy thorax presents a marked uniformity in the contour of each side, the outlines being rounded and smooth. As disease is very frequently confined to one side, we compare the sound with the unsound side, and thus readily detect any alteration in shape. It is only in chronic affections that we notice marked changes; it is true, that in pleurisy the effusion will sometimes be rapid and in large quantity, causing bulging of the intercostal spaces, but this is the only case. The size is increased from the presence of effusion, or from emphysema; circumscribed enlargement may be caused by a tumor, or an aneurism. It is diminished in those cases in which the

structure of the lung is destroyed, as in phthisis, and suppurative inflammation, and in a less degree by extensive solidification.

RESPIRATION.—The extent and freeness of the respiratory movement, determines to some extent the capability of the lungs to properly perform their function. To determine this, we sometimes examine the movement of the walls of the thorax and abdominal muscles; if it is necessary we measure the amount of thoracic expansion, by drawing a tape line from the spinous process, following the rib to the center of the sternum; the difference in measurement between expiration and inspiration, determines the capability of that side of the thorax. Respiration normally is both thoracic and abdominal; in disease it may be either the one or the other. Thoracic respiration occurs in cases of inflammation of the diaphragm, or its pleura, or of the upper abdominal viscera, or peritoneum. It is abdominal in pleurisy, pericarditis, in extreme debility, and in apoplexy. Respiration is increased in frequency from two causes: 1st, in consequence of an increased frequency of the circulation, in which it bears a normal relation to pulsation, one to four: and 2d, in disease of the respiratory apparatus, there not being necessarily any proportion between the frequency of respiration and pulsation. A slow and free respiration indicates an easy circulation of the blood, sound lungs, and an unimpaired distension of them. If the respiration is large and attended with difficulty, much exertion being necessary, it indicates loss of nervous power, and approaching coma or stupor. The short respiration, when unattended with pain, is a very certain symptom of obstruction of the lungs, as in hepatization, phthisis, hydro-thorax, etc.

Difficult respiration or dyspnoea is manifested by the patient's laboring for breath: generally they assume a sitting or upright posture, grasping some object firmly by the hands to fix the shoulders, and thus give greater power to the inspiratory muscles. It is caused by contraction of the air passages, effacement of the air cells, disease of the circulatory system, causing engorgement of the lungs, and want of innervation. It may come on gradually or insidiously, or it may be violently sudden. When continuous, though but slight, it is singularly fatiguing and exhausting; but when severe, even when paroxysmal, it causes intense suffering, attended with a feeling of impending death. In every variety of difficult respiration the

circulation through the lungs is impeded, hence a marked change in the pulse from this cause. Respiration in health is inaudible to the ear away from the chest, therefore, when heard it becomes an evidence of disease. The *stertorous* or *snoring* respiration in disease, is symptomatic of a paralytic state of the lungs, as in apoplexy, congestion of the brain, coma, etc.; though occasionally it depends upon an accumulation of mucus, pus, or blood in the bronchia. The *sibilant* respiration is observed in diseases in which there is contraction of the air passages, with dryness; when marked, it indicates spasmodic contraction; or it may arise from an exudation upon the surface of the mucous membrane, rendering the caliber smaller, dryness of the air passages being present in all cases. The *crepitant* respiration indicates accumulations of a very tenacious mucus or pus.

COUGH.—Coughing arises from an irritation of the sensitive nerves distributed to the various parts of the respiratory apparatus. The purpose fulfilled by the act of coughing, is the removal of irritating matter which may be in the air-passages, and in a majority of cases it directs our attention to this part of the system as the seat of disease. It may, however, be sympathetic, arising from disease of the stomach, liver, and other abdominal viscera. As the tone or special character of the cough varies, according to the condition of the organs by which it is produced, this change in its character becomes an element in diagnosis. A *hollow* or *barking* cough makes the impression on our mind, that there is lack of expulsive power, and a want of tonicity in the respiratory organs. It is heard in the last stages of consumption, bronchitis, and sometimes in nervous affections. When *sharp* or *ringing* it is dependent upon disease of the larynx. A *hoarse* cough is dependent upon some relaxation, with increased secretion, in the larger air-passages. It is observed in incipient catarrh, croup, chronic laryngitis, and anginose affections. In asthma the cough is wheezing; in certain diseased conditions of the larynx it is belching; and paroxysmal in whooping-cough and hysteria. It may be dry, indicative of want of secretion; or humid and moist, showing that secretion has taken place.

If the surface of the chest be auscultated during the cough of a healthy person, a short, dull, and indistinct and diffused sound, quickly produced, is heard, attended with a sensation

of succussion in the interior of the thorax. The morbid manifestations of pulmonary cough are three: bronchial, cavernous, and amphoric. The *bronchial* cough is harsher and more concentrated than the cough in health: it is met with wherever there is an unnatural density of the lungs, when they are compressed by fluid, or when the bronchi are enlarged: so in phthisis, pneumonia, pleurisy, and dilation of the bronchi in chronic bronchitis. The *cavernous* cough has a hollow and metallic character, and gives the sensation of being produced in a small excavation; there is a strong impulse in its transmission to the ear, and it is commonly associated with the cavernous rhoncus. The *amphoric* cough is loudly resonant and metallic in its character, and is met with where there are large tubercular excavations.

SPUTA.—Much may be learned regarding disease of the respiratory organs by a critical examination of the sputa. We form an opinion of whence the sputa comes from the exertion used in raising it. Thus spitting is the act by which the saliva and other matters in the mouth are ejected. By *hawking*, the mucus accumulated in the posterior nares, pharynx, and fauces is got rid of. This is attended with a peculiar inspiratory effort, and followed by a guttural cough. Expectoration is the effect of cough, and indicates that the matters raised proceed from some part of the respiratory apparatus below the glottis.

The character of the sputa may be studied with reference to quantity, quality, consistence, form, composition, color and odor. The sputa is scanty in the first stages of active inflammation of the lungs, bronchi, larynx, pharynx, and posterior nares, and is frequently entirely wanting. It is also scanty in some cases of chronic disease—as bronchitis, laryngitis, phthisis, etc., the cough being dry and rasping. It is more copious toward the close of acute disease, and very abundant in many chronic diseases of these organs—as in *bronchorrhœa*, where a pint or quart of mucus is thrown off in the course of twenty-four hours. In consistence it is serous or watery in the forming stage of bronchitis, pulmonary congestion, and vesicular emphysema. It is mucous and more or less viscid, as the result of acute inflammation of the mucous lining of the air tubes, as we see in bronchitis, pneumonia, and laryngitis. It is purulent as seen in the third stage of pneumonia and phthisis pulmonalis; or a muco-pus, as in some cases of bronchitis.

It sometimes contains small roundish masses, either tubercles or desiccated mucus—the difference being determined by the cheesy consistence of the first, and the tenacity of the second when rubbed down with water. Blood, either fresh, bright and fluid, or dark, clotted or broken down, is frequently a constituent.

The *form* of the sputa is owing very much to its consistence. Thus, if very viscid, it will be elongated and stringy, as we observe in acute bronchitis. It may be frothy, flattened and run together in the vessel, which is characteristic of pneumonia; or it may be in distinct rounded and almost hemispherical masses, as in the expectoration of tubercles in phthisis pulmonalis; or they may assume the shape of the cavity from which they were raised, as in pseudo-membranous laryngitis, the bronchitis of measles, and sometimes in chronic bronchitis and phthisis. The sputa is composed of the natural secretion of the mucous membrane of the air passages varied with the altered products of secretion, and with the admixture of extraneous matters, as blood, tubercular matter, etc.

In color it is white or ashen in the beginning of acute affections of the lungs, pulmonary congestion, and asthma. When yellowish or greenish, it indicates a decrease of the inflammation; and especially if it be thick, a resolution of the disease. The rusty sputa, looking as if it had been tinged with the rust of iron, is characteristic of pneumonia where much congestion exists. Sputa streaked with blood is indicative of the existence of a high degree of inflammation in pneumonia; it is of frequent occurrence in sthenic bronchitis, and sometimes in chronic bronchitis, though here it is an unfavorable symptom. In bronchitis, and the first stage of phthisis pulmonalis, the sputa has a faint and sweetish smell. When the secretion is copious, as in catarrh and bronchitis, the smell is sickening; when purulent matter is expectorated it is foetid;

in gangrene of the lungs it is decomposed and putrid. In some cases, the sputa has been known to have a urinous odor; in others it was bitter, and showed traces of bile, an hepatic abscess having opened into the thorax.

AUSCULTATION AND PERCUSSION.

We derive the greatest amount and most positive information in diseases of the lungs from auscultation and percussion.

The first may be defined to be the act of listening to sound formed within the body by the movement of its different parts. The second, to the sounds heard when a portion of the body is struck upon.

PERCUSSION.—Percussion may be either mediate or direct; in the first, something is placed between the instrument striking and the part struck; in the second, the blow is immediately upon the body. We perform percussion of the thorax usually by placing one or two fingers of the one hand *flat* upon the surface, and striking with the fingers of the other hand, bent at a right angle. Much care must be used in adapting the hand to the chest, that it lies evenly and becomes as it were a part of the wall, and in striking, that the blows be uniform and direct. Again, as the resonance is greater in proportion to the solidity of the walls, we direct that the patient be placed in such position as will place the muscles in a state of tension during the operation.

The thorax, considered in reference to sound, might be compared to a drum, the sonorousness of which depends upon the vibration of its parchment, and varies with its state of tension, and of the medium in which it vibrates. Thus, were the parchment thickened by layers of paper or leather fastened to it, the note would become deadened; if the drum were filled with sponge the same result would ensue; and if filled with sand nothing more than a short, dull noise would be given out. The frame of the chest, consisting of thin, flat bones, fastened at one extremity by ligaments, and at the other by elastic cartilages, and in ordinary cases covered only by a moderate layer of muscles, fat, and skin, is favorably constructed for resonance on being struck. The cavity, however, is not filled with air, like the drum, but with a spongy, elastic substance, containing within itself a large quantity of air, and therefore offering free motion of its walls.

In health, the chest when struck emits a hollow sound, which varies in different parts of it, and is likewise affected by many conditions other than those arising from disease of the viscera contained within. When the walls of the thorax are thick, we have less resonance on percussion—as over the pectoral muscles, over the clavicle, scapula, etc. The resonance is also in proportion to the amount of lung situate beneath the part percussed, and is therefore less where the lung is thin, as under the false ribs. The resonance of the lower portion

of the lungs may also be affected by the abdominal organs contiguous to them—the liver on the right side, the stomach on the left. Thus, the liver may be enlarged and forced upward, encroaching on the cavity of the right lung, displacing it and giving rise to the symptoms of thoracic disease. In this instance, percussion over the right false ribs would give a dull, heavy sound, like that produced in hepatization of the lungs. The stomach may be continuously distended with gas and displace the left lung; in this case the sound would be resonant, like that occurring in emphysema, or where a cavity exists in the lungs.

In respect to the contents of the thorax, if the spongy lung should be in any part replaced by air, percussion would elicit a clearer sound over that spot than over other parts. If it should be replaced by solid or fluid matter, the sound would be dull in proportion to the solidification. We are thus enabled to determine by percussion whether the lungs are in normal condition as to amount of air contained, or the variations of excess and defect.

PERCUSSION IN DISEASE.—The weight of the frame of the chest may be increased in particular spots, by the presence of tumors, the products of inflammation, or effusion into the cellular tissue; thus giving rise to increased dullness. A great many diseases tend to alter the character of the contents of the thorax, some diminishing their density, and others increasing it. Of the former, are pneumo-thorax—the air being between the surfaces of the pleura and emphysema, in which the air cells are dilated, and sometimes ruptured, whereby the air bears a greater ratio to the lung tissue. Again, some diseases destroy portions of the lung, a cavity being formed connecting with the bronchial tubes, and filled with air. All these diseases produce the same effect in respect to percussion, rendering the sound much clearer than it is in health, on the principle above stated. The density of the contents of the thorax is increased by the presence of fluid in the pleural cavities, by distension of the pericardium, aneurism, and solidification of the lungs.

In some instances of pleuritic effusion, the fluid is limited by adhesions, and the resulting dullness may be confined to but one spot of the thorax, but usually it is only bounded by the pleural sac. In this case, if in large quantity the whole side will be dull on percussion; but if less fluid exist, the seat

of dullness will vary with the position of the body, and will follow the fluid, which gravitates to the lowest parts. The pericardium may be distended with blood or serum, displacing the lung, or the heart may be hypertrophied, giving rise to dullness over the region of this organ. Very rarely the pulmonary artery or aorta may be dilated so as to reach the surface of the chest, or an aneurism may be formed, or a tumor developed within the cavity of the thorax. In regard to fluid in the lungs, as long as it is confined to the bronchial tubes, the sound of the chest on percussion will not be affected, because there is plenty of elastic lung between the tubes and the surface of the chest. Dullness will, however, result from congestion of the cellular portion of the lungs in contact with the walls of the thorax, whether of a passive character, being the result of obstruction to the circulation; or of an active character as in the early stage of inflammation; and also from abscesses or excavations containing fluid and approaching the surface.

Solid matter may also replace the lung, and give rise to dullness,—as in strumous or encephaloid disease of the mediastinum; tubercles in the lungs; pneumonia, chronic or acute, in the stage of hepatization; pulmonary apoplexy, etc. In all these cases the chest will sound dull over the spots corresponding to these solid deposits. It must be remembered, however, that a considerable quantity of solid matter may exist near the center of the lung, and may also be diffused in small masses through healthy lung, as in some cases of acute phthisis, without engendering dullness of sound. Percussion gives another valuable indication, too generally overlooked, *i. e.*, the sensation of resistance in the part percussed, depending on increased density in the subjacent lung. When the sense of touch is more delicate than that of hearing, this source of diagnosis is of great value. In acute phthisis, when, from the similar condition of both lungs, there is no means of comparison, it is often a most important sign.

AUSCULTATION. — Auscultation, like percussion, is either mediate or direct. By the first, we understand the hearing the sounds produced within the thorax, by means of an instrument termed a *stethoscope*; by the second, the listening with the unaided ear. Stethoscopes have been made out of various materials, and in every form, from a penny whistle to a trombone. They are in many cases an egregious humbug, interfering with, instead of assisting the object of our investi-

gation. The simple wooden cylinder, is undoubtedly the best form of stethoscope, and I prefer it without any cavity,—simply a round piece of hard wood, adapted to the chest at the one extremity, to the ear at the other. The ear, however, is the preferable instrument, as it is always present, convenient of use, and more reliable than any artificial aid. It is not a stethoscope, but the power to concentrate the attention, and call into action that beautiful mechanism that intensifies hearing in the act of listening, that gives success in auscultation. This, like everything else, is obtained by patient, persevering study, and continued practice.

In availing himself of auscultation as a means of diagnosis, the physician must know the normal sounds produced by respiration. By applying the ear to the chest during inspiration, a soft sound is heard, accurately likened to that produced by a person sipping air with his lips. Sometimes this sound is prolonged so as to accompany the escape of air from the chest; always, however in healthy persons being less intense in expiration than in inspiration. This is called the vesicular or respiratory murmur, or pulmonary respiration. At certain parts of the chest, over the large bronchial tubes, as between the scapula, the sound during inspiration is coarse and blowing; this is called the bronchial respiration or sound. Over the trachea the sounds are much stronger than those heard over any part of the chest; they are nearly, if not quite equal in duration and intensity, both in inspiration and expiration. They possess a peculiar, hollow, blowing character, as if wind was blown from a tube into the ear; this is called the tracheal sound.

When the ear is placed over the trachea, or between the shoulder blades of a person in the act of speaking, the voice appears to issue from the spot to which the ear is applied. This resonance of the voice is called broneophony. In other parts of the chest no resonance of the voice is perceptible.

The sounds heard in auscultation of the lungs in disease, are modifications of the natural respiratory murmurs, and adventitious sounds which supersede them, called *rhonci*. Natural respiration may be variously altered; sometimes the pulmonary sound is increased above its normal standard, at others it is diminished or disappears entirely. The intensity with which sound reaches the surface of the chest may depend

either upon its formation or its propagation. Increased intensity of the respiratory murmur may occur in the parts of the lung adjoining those rendered unfit for the purposes of respiration, the sound parts of the lung receiving air in greater quantity to make up for the deficit caused by want of action in the diseased part. Thus, it will be found that when the whole, or a large part of one lung is rendered impervious to air by disease, the intensity of the respiratory murmur will, in nearly all cases, be increased in the opposite lung; this has been termed *puerile respiration*, as the sound is much more intense in children than in adults.

Decreased intensity or entire suspension of the respiratory murmur, may take place by the deposit of solid or liquid matter in the air cells, minute bronchial tubes, or intercellular tissue, whereby the expansion of the lung and the passage of the air through the minute tubes in which this sound is generated is prevented. This occurs in *pneumonia*, *pulmonary apoplexy*, and *phthisis*. It may also take place from any obstruction which prevents the air from entering the bronchial tubes; as from accumulations of mucus, pressure caused by diseased bronchial glands, aneurism of the aorta, etc. The intensity may also be affected by the medium through which it is propagated; thus, the sound will vary in intensity according as the thoracic walls are thin or loaded with fat, serum in the cellular tissue, lymph on the pleural surface, or tumors of various kinds. It will also be deadened if the lung be separated from the thoracic wall by effusion in the pleural cavities: in this case the sound will be impaired both in its formation and propagation.

Respiration is sometimes incomplete, the respiratory murmur being deficient at its beginning or close; this accompanies *spasmodic asthma*, or whenever there is spasm of the bronchial tubes. It may also be jerking, having two or three interruptions during each inspiration; this is met with in *asthma*, *incipient pleurisy*, and certain cases of *tuberculous infiltration*. The respiratory murmur is a smooth, even, musical sound, when the lungs are in a healthy condition. It becomes rough and harsh in its character in certain diseases, and is then a very important sign; thus, in the first stages of *phthisis*, it is sometimes the only certain and available symptom of the affection.

When the bronchial sound is heard over any portion of the

chest other than between the scapula, and over the top of the sternum, it arises from condensation of the pulmonary tissue; this occurs in pneumonia, tuberculosis, etc.

The *adventitious* sounds are those that either mask or suspend the natural sounds. They are caused by alteration in the caliber of the bronchial tubes, or by air bubbling through fluid contained in these tubes, or in cavities of the lungs. These sounds are either dry or moist, and may be elassed as follows:

DRY.	{	Sibilant.
		Sonorous.
		Dry Crackling.
MOIST.	{	Crepitant.
		Sub-Crepitant.
		Mucous.
		Cavernous.

The sibilant and sonorous rhonci are heard in cases where the bronchial tubes are diminished in caliber, accompanied with dryness of the mucous membrane, as in the early stage of bronchitis; the sibilant rhoneus being produced in the small tubes, the sonorous in the large.

The dry-crackling rhoneus is composed of a succession of minute, dry, short, sharp, crackling sounds, few in number, rarely exceeding three or four, coëxisting with inspiration. It is heard in the first stage of phthisis, and is indicative of unsoftened tubercle in moderate quantity.

In bronchitis, in the first and second stages of pneumonia, in certain forms of pulmonary congestion, and sometimes where there are cavities formed within the lungs, the air passages contain fluid of various degrees of consistence. In passing through this fluid the air forms bubbles, which bursting give rise to moist rattles, the sound of which varies with the size of the tubes or cavities in which they are formed.

Of these moist rhonci the *crepitant* and *sub-crepitant* are formed in the smallest bronchial tubes and in the intercellular passages. The crepitant rhoneus resembles the sound produced by rubbing a lock of hair between the fingers near the ear, and is the physical sign of pneumonia in the stage of engorgement and resolution. In the sub-crepitant rhoneus the sound is more moist, and gives the idea of a greater amount of liquid; it occurs in capillary bronchitis, idiopathic and

tubercular, in pneumonia at the period of resolution, pulmonary apoplexy, and œdema of the lungs.

When the sound is produced in the larger bronchial tubes, it is called the *mucous rhoncus*. This sound is heard both during inspiration and expiration, and the larger the tube the louder the sound, and the more ringing its quality. This is heard when there is increased generation of sound, as in bronchial diseases; or when the lung is rendered a better conductor of sound, as in solidification of the lungs from various causes. Thus, it is heard in acute bronchitis, when secretion is established, in chronic bronchitis, asthma, etc.; and in the second case in pneumonia, tuberculosis, etc. In some cases of great debility a large quantity of mucus often accumulates in the air passages from want of power to expectorate, giving rise to the mucous rattle. This sound takes the name of the *tracheal* rattle when it is very loud and ringing, and very properly so, as it is produced in the trachea. In some cases of chronic bronchitis the mucus is very thick and tenacious, which gives rise to a succession of large cracklings, as if large bubbles were slowly formed and burst; this is more marked when the current of air is feeble, as in emphysema of the lungs.

The *cavernous rhoncus* has a peculiar hollow and metallic sound, varying with the size of the cavity, with the quantity of fluid it contains, and with the density of its walls. If the cavity be small, it will resemble the mucus rhoncus, if the cavity be large the sound will be proportionate to its size. In cases in which the cavity has cicatrized, no fluid being contained, the sound will resemble that produced by blowing in a bottle, and is termed the *amphoric* sound.

On the application of the ear to the healthy chest when a person is speaking, a diffused buzzing is heard, except over the upper part of the sternum, over the larger bronchial tubes and trachea, between the scapula, where the voice is transmitted with some force, constituting natural *broncophony*. In disease several modifications of vocal resonance occur. It may be diminished in intensity, or be entirely suppressed, from the feeble conducting power of the substance of the lung, or intermediate substance, as we observe in vesicular emphysema and pneumo-thorax. Or it may be exaggerated broncophony. This exists whenever there is an unusual density of the pulmonary tissue situate between a bronchial tube and the wall of

the thorax, rendering it a better conductor of sound. This happens in tuberculous solidification, and in the stage of hepatisation in pneumonia.

By *pectoriloquy* we understand a state of vocal resonance, in which the voice appears to resound in a hollow space, and is transmitted as articulate words to the ear of the observer. The presence of an excavation or dilated bronchus, whose condition permits free vibration is necessary for its production, and it is present, therefore, in tubercular caverns, and dilated bronchi. In conditions of the lung favorable to the production of broncophony, if there be effusion of fluid within the pleura, a tremulous, nasal and metallic tone resembling the bleating of a goat, will be heard. This is termed *ægophony*, and is audible over but a limited surface, and its position may alter with the position of the patient.

CORYZA.

SYMPTOMS.—This is simple, sub-acute inflammation of the mucous membrane of the nares, the result of cold; it may exist alone, or in connection with disease of more or less of the other respiratory passages. It commences with a “stuffing up of the head” with dull, heavy pain or aching, a feeling of dullness and debility, and sometimes pain in various parts of the body. In a day or two there is copious secretion from the nose; the secretions are arrested to some extent, there being dryness of the skin, constipation of the bowels, and scanty urine. It is a common form of bad cold.

TREATMENT.—Though not dangerous, yet it is extremely annoying, and lasting from one to three weeks, it seems desirable to get rid of it at the commencement. This is accomplished by restoring the secretions; thus, if we have our patient's feet bathed in mustard and water, or in severe cases use the spirit vapor bath, and freely administer some warm, stimulating diaphoretic infusion, we accomplish the purpose. Or, if it is preferred, the wet-sheet pack will answer the same purpose. Or if there is derangement of the stomach, a most speedy, and efficient treatment is a thorough emetic. A brisk cathartic answers the purpose in some cases, and a solution of Acetate of Potassa to the amount of two or three drachms per day, with a small portion of Tincture of Gelseminum is very efficient. The last remedy is one of the most efficient of all

agents, when the patient feels the first sensation of cold, 3ss. taken, with an hour or two's sleep is almost a specific.

INFLUENZA.

EPIDEMIC CATARRH.

This disease has occurred as an epidemic many times in the history of medicine, and several times in this country. As regards its *cause*, we are entirely in the dark; it being supposed by some, that it was produced by long prevailing easterly or northerly winds—extremely variable and damp weather—upon telluric influences—upon contagion—upon alterations of the electricity of the air, etc. Thus, Copland remarks, that, “the seasons and the state of the weather, both antecedently and at the time of the outbreak of influenza, have had no share in its production. Whether appearing in spring, summer, autumn, or winter; or occurring in mild and dry, or in cold and moist weather; or prevailing in cold, temperate, or warm countries, it has presented the same general features.”

SYMPTOMS.—The disease usually commences with a well marked chill lasting for two, three, or four hours, followed by heat of skin, coryza, sneezing, fullness and tenderness of the eyes, soreness of the throat, hoarseness, cough, pain in the back and limbs, restlessness, and marked fever. The cough for the first day or two is usually dry, and attended with some soreness of the chest, slight dyspnoea, and hurried respiration; afterwards expectoration becomes abundant and easy, nausea, loss of appetite, vomiting, costiveness, with a white appearance of the tongue, are generally present. About the fourth or fifth day the symptoms become mitigated, secretion being established from the skin and kidneys; but the cough frequently continues, being severe and obstinate.

“The *complications*, or prominent affections of influenza, were chiefly, a peculiar inflammatory condition of the throat and pharynx—severe gastric disorder—bronchitis—a specific pneumonia, or pleuro-pneumonia—tubercular phthisis—a form of pleuritis—rheumatism—disease of the heart and pericardium,—and severe adynamic and nervous fever.” (Copland). These complications gave the disease in many cases a degree of fatality, which would not have attended the simple affection.

TREATMENT. — The treatment of this disease should be very similar to that proper for fevers arising from cold. Diaphoretics have been strongly recommended; thus, the patient's feet should be thoroughly bathed in mustard water, strong stimulant applications applied to the spine, packed warmly in bed, and given the Compound Tincture of Virginia Snake-root in teaspoonful doses every two hours. The spirit vapor bath has been used with much advantage, as has also a thorough and prompt emetic. The common treatment for fever may also be employed; give first the special sedatives in small doses, frequently repeated; use the hot foot bath and as soon as the pulse is reduced, give diaphoretics and diuretics. Cathartics should be avoided, a simple laxative being employed if the bowels are bound up. Dr. Christison strongly recommended Opium in full doses, with a sparing diet. *Eupatorium Perfoliatum* has been successfully employed; "in the severest cases the disease was treated with this alone, the patient being warmly covered in bed, was induced to swallow a wineglassful of the infusion, warm, every half hour. After the fourth or fifth dose, considerable nausea, sometimes vomiting, with free diaphoresis, ensued, and there was an amelioration of all the symptoms."

OZÆNA.

By *ozæna* we understand a chronic, fetid discharge from the nares, which may be simply a chronic inflammation of the mucous membrane (*ozæna benigna*), or dependent on caries of the bones. The cause of the disease is generally a neglected catarrh, though sometimes it is of syphilitic origin. The disease affects various parts of the cavity of the nose, sometimes extending to the frontal sinus; and even to the ethmoidal and sphenoidal cells. Again, it is confined to but a small surface, which is ulcerated, and sometimes the bone beneath is diseased.

SYMPTOMS. — In chronic inflammation of the mucous membrane of the nares, the patient complains of uneasy sensations, with frequent stuffing up of the nose, nasal voice, and a constant offensive discharge. In cases in which the upper part of the nares, and the frontal sinus is affected, it frequently gives rise to persistent headache, the pain being in the anterior part

of the head. In cases of caries of the bones the discharge has that peculiar odor that always attends the breaking down of bone, and very frequently an examination determines the circumscribed locality of the disease.

TREATMENT.—For the chronic inflammation we employ a variety of agents in the form of inhalation, injection or snuff. An inhalation of Acetous Tincture of Sanguinaria, or that of Myrrh, of the vapor of Creosote, ten drops being dropped into a basin of hot water, the patient breathing the vapor, or of Balsam Tolu or Peru, the vapor being drawn into the mouth and passed out through the nose, answers a very good purpose. In some cases we find it better to use remedies by injection; commencing first with simple warm water to thoroughly cleanse the nose of the decomposing mucus; we follow with such medicated injections as seem demanded, as the Chlorate of Lime, Sesquicarbonate of Potassa, Nitrate of Silver, Dilute Pyroligneous Acid, etc. The syringe used for this purpose should be the long silver tube closed at the extremity, and perforated at the sides with numerous minute holes. In many cases a combination of, ℞, Podophyllin, gr. v; Sesquicarbonate of Potassa, gr. xv.; Sanguinaria, gr. ij.; Hydrastine, gr. x; Ulmus Fulva, ʒi; finely pulverized, answers an admirable purpose as a snuff, used two or three times a day. The quantities named are but the average proportions, and will have to be changed to meet each individual case.

If there is disease of the bones, within reach, as of the turbinated bones, vomer, or anterior portions of the superior maxillary, the same local applications that would be indicated in caries of other parts, will be useful here. The Sesquicarbonate of Potassa in powder or solution, and the Chloride of Zinc, are my favorite agents, the latter being used in a weak solution, say from gr. ij to gr. x to the ounce of Water. In many of these cases a strictly tonic general treatment will have to be pursued, and as the patient's health improves, we notice improvement of the local disease.

CHRONIC PHARYNGITIS.

We notice this here, as it is so frequently associated with disease of the posterior nares, and as a general rule precedes chronic laryngitis. The patient complains of a frequent sense

of "stuffing up" in the back and upper parts of the throat, which gives rise to a hawking and spitting up of a considerable amount of mucus. As it continues there is manifested a tendency to cough, which at last becomes confirmed, the disease having extended to the larynx. On examination we find the mucous membrane thickened, and laid together in folds, or looking relaxed and flabby, the mucous follicles enlarged, and the color changed from the smooth pink to a dusky red, livid or bluish-blanché appearance.

TREATMENT.—We treat this affection by local applications adapted to the condition of the mucous membrane. A gargle of Hydrastis Canadensis, 3j; Tincture of Myrrh, 3ij; Aqua, 3xiiij: Mix; or, R. Tincture of Capsicum, f3ij; Tannic Acid, Geranine, āā 3ss; Aqua, Oj: Mix; or, a decoction of the Cornus Florida, or this and the Quercus Rubra, or the Marsh Rosemary are very efficient agents. The Nitrate of Silver, in solution of 3ss to 3j; Water, 3j, may be used in some cases as a stimulant, and should be applied with a probang. If there are any symptoms of the disease extending downward to the larynx, continuous counter-irritation to the sides of the throat should be immediately adopted.

DIPHThERIA.

Much has been written about this, the latest epidemic of our country, and the majority have adopted the opinions I expressed in regard to it in the Eclectic Medical Journal of June, 1861. I hold diphtheria to be a general as well as a local disease, as is proven by the *languor, listlessness, torpor* of the *nervous system*, and *derangement* of the *excretory* organs, which, as a general rule, precede the local disease; all being symptoms of perversion of the blood, and almost invariably indicating the establishment of febrile reaction. We also find the evidence of *perversion of the blood*, in the heavily-coated tongue, which is more or less discolored at the commencement of the disease, and always, in severe cases, exhibiting the brownish tinge, with more or less sordes upon the teeth as the disease progresses; in the diphtheritic deposit, which is markedly different from the exudations from highly vitalized blood; in the secretions, the urine, in severe cases, being abundant, in all cases discolored, frothy, more or less clouded, with a peculiar, somewhat cadaverous odor—what the ancients would have

termed *illy concocted*; in the evacuations from the bowels, obtained by cathartics, which are frequently large, dark, and almost invariably *fœtid*; and especially in the condition of the blood itself, when the disease has attained its maximum, which is dark, is not changed by exposure to air, forms a loose, easily broken-down coagulum, or does not coagulate at all. Post-mortem examination, in those cases that have run a regular course, *i. e.*, that have not been terminated by an extension of the disease to the respiratory apparatus, shows us the blood broken down to considerable extent, more or less discoloration of tissues from extravasation of the coloring matter and softening of the tissues. These facts, it appears to me, prove conclusively the opinion given above.

There are cases in which the disease is entirely local, at least there is no febrile reaction; but such cases are mild. In all severe cases there is fever, which sooner or later assumes a *typhoid* type. In order to get a fair understanding of the case then, let us divide the disease into, first, a fever of an adynamic character; and second, a local inflammation of the mucous membrane of the throat.

SYMPTOMS.—Usually diphtheria commences with a slightly-marked chill, lasting from two to six hours; though sometimes it is quite severe. Following this, febrile reaction comes up; sometimes slowly and not very well marked, at others quite acute. A very marked feature in this affection, in a majority of cases, is the slow development of the fever and its want of intensity for the first two or three days. About the fourth day of the disease, if not modified by medicines, the fever has assumed a marked adynamic character; the pulse is feeble, soft, and easily compressed, or small and hard; there is marked stupor of the nervous system; pungent heat of the surface, with dry and husky skin; tongue dry and covered with brownish fur, and entire loss of appetite. Subsequently the fever runs the course of a common typhoid fever, unless life is terminated by the disease of the throat extending to the respiratory passages.

At the commencement the patient complains of sore throat, difficult deglutition, and some difficulty of breathing. On examination, we find more or less tumefaction of the mucous membrane of the fauces, tonsils, and pharynx; sometimes of a bright red color, at others dusky or livid, and at others blanched. Upon some of these parts we find the *peculiar exu-*

dation characteristic of the disease, in the shape of patches of an ashen-grey lymph, situate on the surface of the mucous membrane. As the disease progresses this exudation spreads, forming large patches, and sometimes covering all the mucous membrane visible, extending up to the nares and downward to the pharynx. By the fourth or fifth day portions of this become detached and are thrown off, leaving a foul secreting ulcer; there is also a secretion of muco-pus, altogether forming a very unpleasant, fœtid discharge in large quantity. Occasionally the affection of the nares is such that respiration through them ceases; and, again, the muscles of deglutition are so paralyzed that if the patient attempts to swallow, the ingesta is returned through the nose, giving rise sometimes to imminent danger of suffocation. If the disease extends to the larynx, pseudo-membranous croup is the result, presenting all its characteristic symptoms and attended with its danger.

DIAGNOSIS.—Diphtheria is easily diagnosed by the soreness of throat, the peculiar exudation, and marked prostration of strength.

PROGNOSIS.—Though considered an exceedingly fatal disease, and giving a large per centage of deaths in reports of the epidemic, I do not from my experience consider the prognosis unfavorable if proper treatment is given at the commencement of the disease. If, however, it progresses to the fourth or fifth day, the patient being prostrate and the local disease very extensive, the prognosis is doubtful.

TREATMENT.—What are the indications of treatment in such a fever? Plainly they are; first, to reduce the rapidity of the circulation, because we well know that the change in the blood, spoken of above, progresses much slower when the frequency of the pulse is reduced; innervation is improved, and the system placed in such condition that we can get an action from the excretory organs; second, to get secretion from the skin, kidneys, and bowels, as it is through these organs that the morbid material circulating in the blood must be eliminated; third, to increase innervation, for reasons that must be obvious to the reader; fourth, to employ such anti-septic agents as will counteract the septic tendency of the blood; and fifth, to sustain the strength of the patient.

To fulfill the first indication, we may employ either the *direct* or *indirect* sedatives. I prefer the first, and select Tincture of Veratrum and Aconite as the agents. They must be

properly administered, however, as they are agents that can not be given at random without danger. To Water, ʒvj, add Tincture of Veratrum Viride, ʒij; Tincture of Aeonite Root, gtt. xxx; Concentrated Tincture of Asclepias, ʒij; to a child five or six years old give a teaspoonful every hour, until the pulse is reduced to about ninety beats per minute, continuing the remedy in such doses as will just retain it at that point. Usually, from six to ten hours will elapse before you have produced the necessary sedation; in the meantime the alkaline bath may be used, or, if there is deficient circulation to the skin, add stimulants; the extremities must be kept warm. It has been objected to the use of sedatives in this disease, that they produce prostration; and so they will if given in large doses undiluted; but, in the way I recommend, I guarantee that the pulse becomes stronger, with better circulation in the extremities, and better innervation as sedation is produced.

One thing at a time is the golden rule in medicine; we fulfill the first indication before trying to fulfill the second, for the very good reason that until we have reduced the rapidity of the circulation it is impossible to get secretion. Almost any warm diaphoretic infusion will now cause secretion from the skin; to the diaphoretic add Acetate of Potassa, so that the patient will take about ʒj in twenty-four hours; or, if the disease has progressed, until antiseptics are needed. Chlorate of Potassa should be substituted for it, adding an equal quantity of Muriate of Ammonia. If symptoms exist indicating the necessity of evacuating the bowels, accomplish it with mild vegetable cathartics; if not, let the bowels alone.

As soon as secretion from the skin and kidneys is established, we commence the administration of Quinia, with some suitable bitter tonic, say Hydrastine. The principal object in giving Quinia is to obtain better innervation; which is the invariable result, when the system is properly prepared for its administration, and it is rightly given. We would combine the agents named, in equal parts, giving from one to two grains every three or four hours. If the remedy causes excitation of the brain, with increased frequency of the pulse, stop it until these symptoms pass off, then recommence with smaller doses; if it fails to accomplish the end desired, increase the doses, recollecting that we continue the three different classes of remedies together, for the purpose of continuing the influence of each.

The fourth indication, it will be seen, is being fulfilled by the agents named above; but, if our patient desires acid drinks during any period of the disease, they should be given. The fifth indication is also being fulfilled; but as soon as the fever is reduced, and secretion established, nutritious food should be given *in such quantities as can be digested by the patient*. If at any period of the disease prostration becomes such that they are demanded, we use stimulants—as we would in the latter stages of typhoid fever. There is one thing yet to be mentioned:

Our patient must have sleep; it will not answer to give narcotics, while there is febrile reaction and want of secretion; but as soon as the two first indications are fulfilled, we can use Opium for the induction of the necessary rest, with the greatest advantage.

I have been thus explicit, in the direction of the general treatment, because it is of major importance; the constitutional or general disease must be arrested if we wish to contend successfully with the local affection. Please observe that I give medicine by *rule*, and try to accomplish one thing at a time.

Upon examination of the throat, in the early stage of the disease, we find two distinct conditions: in the one case the mucous membrane is bright red; in the other, of a dark purplish color, or somewhat blanched, with bluish discoloration. In the first instance, I apply with probang, Tincture of Veratrum, just sufficient to wet the surface, which exerts a marked influence in arresting inflammation. In both cases I direct, as a gargle, Chlorate of Potassa, 3ss; Water, 3iv; to be used every one, two, or three hours. Where there is dark discoloration, I add 3j vel, ij of Tincture of Myrrh. The external application, invariably, is a flannel cloth, folded three or four thicknesses, wrung out of cold Vinegar, to be changed every two or three hours, and constantly kept covered by a dry flannel. If there is much tumefaction of the mucous membrane, dry-cup the neck; or, if nothing contra-indicates, and the case demands it, cup and scarify. We wish to keep the throat as free from the exudation as possible, in order to prevent serious ulceration, which sometimes assumes a phagedenic character; when, therefore, it becomes partially detached, remove it.

If there is an extension of the disease to the larynx, mani-

fested by stridulous respiration, croupy cough, altered, and at last, loss of voice, give an emetic of Acetous Tincture of Lobelia and Sanguinaria, or, if there is greatly increased secretion, with difficult evacuation, so as to clog up the air passages, and produce symptoms of slow asphyxia, give the emetic; or, if there is alarming prostration of strength at the commencement of the disease, give the emetic; or, if the disease commences with nausea or vomiting, give the emetic.

CYNANCHE MALIGNA.

MALIGNANT SORE THROAT.

I consider this disease here, not as one that affects the air passages specially, but as bearing a strong resemblance to the preceding in its constitutional symptoms. The cause of the disease is not well known, and it generally prevails as an epidemic or is endemic, and is undoubtedly infectious in the severer cases.

SYMPTOMS.—It is usually preceded by symptoms of prostration, listlessness, languor, loss of appetite, disordered secretions, loaded tongue, and foul breath. Following these, we have soreness of the throat rapidly increasing, so that soon the patient swallows with the greatest difficulty, can hardly articulate, and if the nares are involved has labored respiration. Now, we observe that the pulse is frequent, soft, fluent, and easily compressed, the bowels irregular, urine frothy and markedly foetid, skin dry, parched, and rough, or relaxed and flabby, with clammy perspiration; the countenance appears pinched and sallow, the lips dusky and dry, the mouth filled with the secretion from the throat and the exceedingly tenacious and stringy saliva.

If we examine the throat at the commencement we will find the mucous membrane swollen, and of a dusky red or livid color, or in some cases pale, relaxed, and œdematous. In a couple of days we observe that patches of epithelium have been thrown off, leaving a superficial ulcer secreting a foetid mucus: these ulcers spread until a large part of the throat is involved, or increase in depth, at times assuming a phagedenic character, rapidly destroying the tissues.

DIAGNOSIS.—We diagnose this disease by the soreness of the throat, attended with general prostration, deranged secretion, and the foetor of the breath and secretions from the throat.

PROGNOSIS.—The prognosis is favorable at the commencement of the disease in persons of good constitution; but even then it will sometimes continue for a period of ten or fifteen days, and leave a relaxed atonic condition of the throat that the patient does not entirely recover from for months.

TREATMENT.—The treatment must be both general and local. A saturated solution of Chlorate of Potassa given in teaspoonful-doses every hour, with a stimulant diaphoretic infusion, as of Pennyroyal, Spearmint, Sassafras, etc., with a general stimulant bath of dilute Tincture of Capsicum will be appropriate. We find less arrest of secretion in the forenoon, and this is the best time to administer Quinia, which becomes a very important part of the treatment: \mathcal{R} , Quinia Sulphas, Hydrastine, āā , gr. x; mix, and divide into three powders, of which one should be taken every three hours. Counter-irritation to the spine and neck with some stimulant liniment is important.

For the throat we direct stimulant inhalations, as of Pyroligneous Acid, Tar, Creosote, Acetous Tincture of Sanguinaria, etc. As a gargle the solution of Chlorate of Potassa can be used frequently; or what is better: \mathcal{R} , Solution of Chlorinated Soda, f3ij ; Water, $3x$; mix; to be used frequently and freely. This removes the fœtid secretion, and should be followed by a gargle of a strong infusion of Cinchona, or Bayberry and Geranium, or Cornus and Red-Oak Bark; to these the Tincture of Myrrh may be added, if there is a necessity for farther stimulation. The local applications recommended in diphtheria will be appropriate here.

TONSILLITIS.

QUINSY.

The tonsils in some persons appear to be predisposed to inflammation, and from the action of cold upon the system and atmospheric vicissitudes, they suffer frequently and severely from this affection. The predisposition to return is the worst feature of the disease, and the most difficult to remove. Both tonsils are usually affected at once, or in succession, but sometimes the disease is confined to one.

SYMPTOMS.—Quinsy usually manifests itself first, by soreness

and stiffness of the throat, with difficult deglutition, and more or less derangement of the digestive functions: occasionally it is ushered in with a marked chill, followed by febrile reaction. There is always some fever, dryness and constriction of the skin, and general arrest of secretion. In a few hours, the patient complains of pain, and a sensation as if some foreign body were present in the throat, with heat and constant desire to swallow. When fully developed, deglutition becomes so difficult and painful as to occasion extreme suffering, and in some cases it is impossible. A guttural cough, with frequent desire to remove the secretion from the throat; a hoarse and difficult respiration, and confused whispering, and guttural articulation, or sometimes entire loss of voice is observed. In the severer cases it becomes impossible for the patient to lie down, and in many, but little rest is obtained in consequence of the difficult respiration when the will is in abeyance. If we examine the throat in this disease, we will find the tonsils enlarged, and reddened; sometimes so large as to entirely close the opening of the fauces.

An attack of quinsy continues for a variable length of time: usually from four to twenty days, and terminates sometimes by resolution, at others by suppuration. When it terminates the last way, the gland rapidly enlarges; there is a dull throbbing pain or aching, and a yellowish color near where the pus points; usually it readily comes to the surface and discharges without assistance, but sometimes it is very slow and requires the lancet.

A condition of chronic inflammation and enlargement frequently continues, in those predisposed to the disease. The glands appear prominent on examination; the mucous follicles enlarged; the color a dusky-red, and considerable tenderness. Associated with this, we frequently have a chronic irritation with determination of blood to the entire isthmus of the fauces, and elongation of the uvula, giving rise to a continuous disagreeable cough, derangement of the general health, finally inducing serious disease of the respiratory apparatus.

TREATMENT.—In the first stage of the disease, we direct the hot foot bath with the free use of a nauseant diaphoretic, as the Eupatorium, small doses of Lobelia with infusion of Pennyroyal, Sage, etc. At the same time the patient should inhale frequently, the vapor of Vinegar and Water, of Camphor and Vinegar, or of equal parts of Vinegar and Water holding in

resolution a considerable portion of Nitrate of Potassa. As a local application to the throat, the Tincture of Veratrum, applied with a probang, two or three times daily, or oftener, is the most efficient remedy I have ever used during the first day or two. Gargles are not very serviceable in this stage of the disease, but the throat may be cleansed with dilute Vinegar, Solution of Nitrate of Potassa, or Muriate of Ammonia and Mucilage. Warm fomentations are very frequently resorted to, but without favorable results: I prefer the simple cold Vinegar pack, or the application of a cold Terebinthinate embrocation. A brisk cathartic in the early stage, is often of benefit, and occasionally it is necessary to repeat it.

In the *asthenic* forms of the disease, occurring in persons of feeble health, or in those in which the structures have been permanently impaired by its frequent recurrence, a stimulant and astringent local treatment is better. Thus, we direct a gargle of Alum, of solution of Tannic Acid and Capsicum, as heretofore named, strong Tar Water, Pyroligneous Acid, Sulphate of Zinc, etc. In these cases inhalations of Camphor, Myrrh, Pyroligneous Acid, Tar, etc., with Vinegar, will be found useful. Here we find the cups to be the best external application, followed by warm fomentations of Lobelia, Hops, etc.

If the disease continues, after sufficient time has elapsed to produce resolution, it is better to resort to warm fomentations or poultices, with the internal use of demulcents to favor suppuration. If the patient suffers greatly, and a sufficient length of time has elapsed for the pus to have been discharged, we open the abscess with a scalpel guarded and passed directly backwards. All that is necessary then being the employment of astringent and stimulant gargles.

In the chronic enlargement that follows the acute disease, we can sometimes succeed in removing the irritation and hypertrophy by the judicious use of stimulant and astringent applications. I have used with marked advantage the Persulphate of Iron, both dry and in solution. The Nitrate of Silver has been used with benefit, but is far inferior to the agent just named. In addition I direct a gargle of Bayberry, Yellow Dock, and Red Oak Bark, or a direct application on cotton of finely-powdered Sanguinaria, moistened with Vinegar for half an hour to one hour, daily. These means, associated with the external employment of the irritating plaster, will

prove successful in many cases, entirely removing the predisposition to quinsy. In other cases no means will prove successful, unless the tonsils are excised; and even this fails frequently.

ACUTE LARYNGITIS.

This disease may properly be divided into three forms: 1st, *catarrhal laryngitis*; 2d, *acute laryngitis* proper; and 3d, *asthenic laryngitis*. It occurs as a simple inflammation, confined strictly to the larynx, or associated with disease of other parts of the respiratory apparatus. The cause of laryngitis is generally cold and sudden atmospheric changes, though it may be produced by the inhalation of irritant vapors, etc.

SYMPTOMS.—1st. In *catarrhal laryngitis* the disease is usually associated with catarrh, and characterized by the usual catarrhal symptoms. In addition, the patient complains of constriction and soreness of the larynx, hoarseness or partial loss of voice, which sinks to a whisper, and a hoarse cough, which is at first dry, but is attended with expectoration, as the disease progresses.

2d. *Acute laryngitis* proper is a most dangerous form of disease. It usually commences with a slight chill, soreness and stiffness of the throat, difficulty of swallowing, and sense of constriction and desire to clear the throat. Following the chill, febrile reaction comes up, and is quite intense, considering the extent of the inflammation. Then a dull pain is felt in the throat, the sense of constriction is markedly increased, and there is tenderness on pressure; the voice is harsh, hoarse, or stridulous, and there is a frequent dry short cough. If the throat is now examined, the fauces will be found red and tumid, and when the tongue is pressed down the epiglottis may be seen erect, swollen, and red. In the course of from twelve to twenty hours, the inflammation has markedly diminished the aperture of the glottis, the voice becomes small, piping, whispering, and soon suppressed. The breathing is difficult, inspiration being sibilous, shrill, prolonged and laborious, the larynx being forcibly drawn down on each attempt to inflate the lungs. The cough is stridulous and convulsive, and attended by attacks of spasm of the glottis, which threatens suffocation, the expectoration being scanty and viscid, and removed with difficulty. In the last stage of the disease, the

patient exerts all his power in respiration, sitting upright and grasping objects in reach to bring into play the external inspiratory muscles. The countenance is pale and anxious, the lips livid, and the eyes almost start from their sockets, the extremities are cold, and covered with a clammy perspiration. Soon a low delirium or coma comes on, the pulse becomes more feeble and intermittent, imminent symptoms of asphyxia appear, and the patient rapidly sinks.

Asthenic laryngitis, or *œdema of the glottis*, is generally confined to the upper part of the larynx, the constriction being caused by infiltration of the margins of the larynx and epiglottis. The disease commences with a continually increasing impediment to respiration, and a feeling of fullness and constriction, and continuous desire to clear the throat, as if caused by some foreign body; the voice becomes hoarse, croupal, then sharp, stridulous, whispering, and is then lost entirely; there is a hoarse convulsive cough, with fits of suffocation, causing great agony. While inspiration is prolonged, stridulous and exceedingly difficult, expiration is comparatively easy. This feature is so marked as to be pathognomonic of the disease. There is no fever, but as the disease progresses the pulse becomes frequent, small and irregular. The difficulty of breathing increases; the fits of coughing and suffocation are more frequent; symptoms of asphyxia are very apparent, the cerebral functions are disturbed, and at last death ensues from inability to inflate the lungs.

DIAGNOSIS.—The diagnosis is readily made in these cases, from the peculiar character of the voice, cough, location of soreness and constriction, and extreme difficulty of breathing; in asthenic laryngitis, by the marked difficulty of inspiration, and freedom of expiration.

PROGNOSIS.—The prognosis is favorable in the first form, and even in the second, if the treatment is prompt and active, but doubtful in the third.

POST-MORTEM EXAMINATION.—The mucous membrane of the larynx in acute inflammation is found red, congested, and thickened, with slight sub-mucous infiltration in some cases. But in none is there sufficient closure of the opening to account for the death by asphyxia: we have, therefore, to attribute it in part to spasmodic or tonic contraction of the intrinsic muscles of the larynx. In asthenic laryngitis the sub-mucous

cellular tissue of the under surface of the epiglottis, and margin of the glottis, and even as far down as the ventricle of the larynx, is infiltrated with serum, readily accounting for the difficult inspiration.

TREATMENT.—In catarrhal laryngitis, the treatment is simple. I direct frequent inhalations of the vapor of Water, until expectoration commences, giving, at the same time, equal parts of the Acetous Tinctures of Lobelia, Sanguinaria, and Simple Syrup in moderate doses, every quarter or half hour, with the hot foot-bath, some warm diaphoretic, and the Stillingia Liniment applied to the throat.

In the acute affection, means to cause relaxation of the larynx are of the utmost importance, giving us time to arrest the inflammation. For this purpose, we employ cloths wrung out of hot water, frequently changed, and the additional use of equal parts of Oils of Lobelia and Stillingia, with just sufficient Alcohol to cut them. Dry cups, or the cups and scarificator may be employed with marked advantage, if properly used. In addition, inhalation of equal parts of Vinegar and Water, or either alone, is highly useful. Counter-irritation should be thoroughly employed to the spine and to the extremities, and for the same purpose, in the early stage of the disease, a brisk cathartic may be administered.

Internally, the most efficient remedies are the Acetous Tinctures of Lobelia and Sanguinaria, and Syrup, equal parts, given in tablespoonful doses every five or ten minutes. It should be employed so as to keep up continuous nausea, but not to produce vomiting, unless it is found that such nausea does not produce the general relaxation necessary, when the Compound Powder of Lobelia, in infusion, may be given so as to produce thorough and sufficiently continued emesis to accomplish the desired result.

Asthenic laryngitis is more difficult to manage, our principal resources being those that produce revulsion. Thus, we employ stimulant applications to the throat, with the dry cups, or, in lieu of this, the cups and scarificator. The back, loins, hips and extremities should be thoroughly rubbed with the Tincture of Capsicum, repeated as often as it seems necessary. Internally, a stimulant Hydragogue cathartic might be administered, and followed by Stimulants, Tonics, and the Chlorine salts. Inhalations of a slight stimulant character has proven advantageous, but further than this, treatment directed to the

respiratory passages is worse than useless. It is stated, upon good authority, that in the early stage of the affection, a stimulant emetic of Lobelia, carried to its farthest limit, has cut short the disease at once, and I would be disposed to try it in a person naturally feeble, in preference to other modes of treatment.

CHRONIC LARYNGITIS.

Chronic laryngitis may arise from an improperly treated catarrhal laryngitis, quite frequently from an extension of the chronic inflammation of the pharynx, heretofore spoken of, downward to the larynx. Great and prolonged exercise of the voice, as in public speaking, singing, etc., is a prominent cause. Syphilis, also, not unfrequently affects the larynx, the result being almost certain death.

SYMPTOMS.—Chronic laryngitis usually comes on slowly and insidiously, the patient being hardly aware that he is suffering from a serious disease, until it is confirmed. The first symptoms are soreness of the throat when speaking, with constriction, slight alteration of the voice, cough, and expectoration, which comes on after slight exposure, or over-exertion of the larynx. These symptoms are ameliorated in a short time, and the patient thinks it but a slight cold, from which he is recovering. As time advances, however, the attacks become more frequent, last longer and do not so nearly disappear. The disease being fully established, there is a constant uneasy sensation in the region of the larynx, the voice is seriously altered, and there is a constantly annoying cough, with expectoration. The expectoration is at first scanty and mucous; but, as the disease advances, it is muco-puriform, sanious, concretioned into lumps, or consists of almost pure pus. Hemorrhage occurs in the latter stages, sometimes in very large quantity. If the throat is examined, we notice the evidence of chronic inflammation of the fauces, pharynx, and epiglottis, and we reasonably suppose that the mucous membrane of the larynx corresponds in appearance; with the laryngoscope we are enabled to view the internal surface of the larynx, and determine its condition tolerably accurately.

The impairment of the general health is usually in direct ratio to the severity of the local affection. At the com-

mencement, the patient complains simply of debility, with some failure of the digestive organs, and sometimes torpor of the secretions. When it has progressed for some months he is unable to attend to business; there is loss of flesh and strength, marked impairment of the digestive functions and of excretion. Now, frequently the system becomes so depressed that tubercles are deposited in the lungs, the symptoms of phthisis are developed, and the disease runs a rapid course to a fatal termination.

DIAGNOSIS.—We diagnose chronic laryngitis by the unpleasant sensations in the region of the larynx, the cough and expectoration, the appearance of the throat, and the absence of physical signs of other disease of the respiratory apparatus.

PROGNOSIS.—The prognosis is not favorable, as but few have the patience necessary to persist in the use of remedies until a cure is effected. It can be cured, but it requires time and perseverance, otherwise the disease is as fatal as confirmed phthisis.

POST-MORTEM EXAMINATION.—The lesions revealed by the scalpel are various: sometimes there is simple thickening of the mucous membrane, with enlargement of the follicles, at others there is superficial ulceration or large deep, ragged, and sloughy ulcers, sometimes invading, or even perforating the cartilages. The lungs and bronchia are variously affected, tuberculosis being the most frequent condition.

TREATMENT.—A very important part of the treatment in this affection is that directed to a restoration of the general health; and for this purpose remedies can also be selected so as to exert a beneficial influence upon the local disease. As a general tonic, I employ the *Ptelea Trifoliata*, the *Achillea Millefolium*, the *Cornus Florida*, *Populus Tremuloides*, etc., in the form of essential tincture, adding the *Cinchona* in the form of ferrated tincture when it seems necessary. The Hypophosphites have proven beneficial in this affection, and may be employed with the tonics and Cod-Liver Oil. Especial attention should be paid to the excretions—the skin stimulated to action by the use of appropriate baths, generally of a stimulant character—the kidneys by small portions of the alkaline diuretics—and the bowels by mild laxatives and habits of regularity. The tonics and other agents will have to be changed frequently, as remedies soon lose their influence upon the system.

For the local disease we use remedies taken internally, in the form of inhalation, insufflation, and direct application. In cases attended with deficient secretion the Nauseant Expectorants may be used with advantage, and if the laryngitis is complicated with bronchitis, the proper expectorant should be employed. Otherwise we employ remedies not for their general influence when absorbed from the stomach, but for the impression made upon the throat whilst they are slowly swallowed, or the throat is gargled. Thus, for the relief of the troublesome cough, nothing has proven more efficient than \mathcal{R} , Oil of Stillingia, Oil of Lobelia, Oil of Cajepnt, āā , ʒiij ; Alcohol, ʒiv ; mix, and give in doses of from one to two drops on a lump of sugar, every three or four hours. Small portions of Morphia, Extracts of Indian Hemp, Hyoseyamus, Belladonna, etc., combined with Mucilage and Simple Syrup, may be used in the same way. The treatment named under the head of chronic pharyngitis stimulant and tonic gargles, is applicable in a large majority of cases, as the two diseases are associated together.

Inhalations are of much advantage, as by this means we may relieve the irritation and cough, and produce a stimulant, tonic, or astringent action, directly. If there is much irritation and dryness, Aqueous vapor should be the vehicle, and Lobelia and relaxants, with suitable narcotics or sedatives to relieve the cough, the agents of inhalation. If less irritation, the vapor of Vinegar is the best vehicle in many cases, though diluted Alcohol or Water may be employed. As tonics, a strong decoction of Hydrastis, Tincture of Humulus, Cornus, Populus, Trillium, etc., may be employed; as an astringent, Tannic Acid, or the astringent preparations of Iron; as stimulants, the Sanguinaria, Podophyllin, Xantoxilin, Myrrh, Balsam of Peru, of Canada, of Tolu, Tar, Resin, Creosote, Iodine, etc. By insufflation any agent may be employed that would produce a beneficial influence by contact, the agent being readily soluble in the fluids of the part. Thus I have used finely powdered Hydrastine, Beeberina, and Camphor, as a stimulant and tonic; Tris-Nitrate of Bismuth, Morphia, Sesquicarbonate of Potassa, etc., for the relief of pain and irritation; and \mathcal{R} , Nitrate of Silver, grs. iiij , vel, x ; Tannic Acid, ʒj , to arrest hemorrhage, and check too profuse secretion. In using these agents, we put the finely pulverized agents in a small tube, and pass it back until the extremity is over the

opening of the glottis, then let the patient draw his breath through the tube.

Externally we direct continuous counter-irritation to the sides of the larynx, sometimes with the irritating plaster, at others with the Fly blister, and at others by a plaster of Galbanum, or Common Pitch and Capsicum. Sometimes it is advantageous to apply the counter-irritant immediately below and behind the ear, and the posterior and upper part of the neck. Quietude of the part is of the greatest importance. The great difficulty in accomplishing a cure is the continued movement and consequent irritation. Public speaking and singing should, therefore, be entirely prohibited, and the larynx used as little in conversation as possible.

I have not yet spoken of Nitrate of Silver, the *multum in parvo* of certain practitioners—the agent which singly and alone was to cure this very serious affection. That it may aid in effecting a cure by its stimulant influence I do not deny, but I claim that its improper use has caused more injury than its application has ever done good. It may be advantageously used as an application to the pharynx, fauces, base of tongue, and near the larynx, as heretofore recommended; but the probang should never be passed into the larynx—if the solution must be passed into the larynx, use the rubber syringe with curved silver tube closed at the extremity, and perforated with minute openings, pass it carefully and quickly into the larynx, and inject the solution. Many persons who use the probang and Nitrate of Silver in this disease never pass it into the larynx at all. I might say that not one out of ten accomplish the object. This being the case, the treatment should be abandoned; but much more so, considering the fact that the remedy will not cure chronic inflammation of any part of itself.

CROUP.

Croup is essentially a disease of the larynx, and true croup has also been termed laryngitis, but it is well enough to retain the name croup for the affection of children, as it differs very materially from the laryngitis of the adult. Three forms of croup have been described, each having characteristic symptoms; they are, the mucous, pseudo-membranous, and spasmodic.

SYMPTOMS OF MUCOUS CROUP.—This form of the disease is frequently preceded by well marked symptoms of coryza, and sometimes a stuffing up of the breast, slight difficulty of respiration, a cough, and a general "bad cold." The attack of croup generally comes on at night, the little patient being restless and uneasy, and the respiration rough and whistling. Soon it awakes with a hoarse croupy cough and sensation of choking, appears frightened, breathes laboriously, and continues the cough until a portion of mucus is raised, when the spasm passes off and it breathes freer. In a short time respiration becomes permanently difficult, and there is a peculiar whistling and gurgling as the air passes through the larynx.

The cough is hoarse, shrill, gurgling, with a marked ringing metallic sound. The voice is changed, becoming shrill and piping, and at last sinks to a whisper, even the cry being whispering at first, terminating in a shrill piping sound. If the child sleeps, mucus accumulates in the throat, the breathing becomes more and more difficult, and at last the child awakes with symptoms of imminent asphyxia. At first the skin is dry, its temperature slightly increased, and the pulse full and hard; but as the respiration becomes more difficult, a cold clammy perspiration breaks out, the extremities become cold, and the pulse frequent and feeble. The difficulty of breathing and other symptoms continuing to increase, the disease terminates fatally from twelve to forty-eight hours from its commencement.

PSEUDO-MEMBRANOUS CROUP.—This form of the disease comes on slowly and insidiously; the first symptoms being a dry whistling inspiration, a slight metallic cough, and some alteration of the voice. These symptoms continue to increase for two, three, or four days or more, before the final paroxysm, the child meanwhile appearing tolerably well, with the exception of the symptoms named. The day previous to the final attack these symptoms frequently become so marked as to excite notice, and mild measures are used for its relief.

Finally the respiration becomes very laborious, both inspiration and expiration being hard and whistling. The cough is hoarse, dry, ringing and metallic. The voice sinks to a whisper, is shrill and stridulous. The ear applied to the larynx detects at once the evidence of stricture, and the want of secretion. As the disease progresses, the child is attacked by fits of suffocative cough, the lips become livid, the countenance

congested, the extremities cold and clammy, coma makes its appearance and the child dies.

SPASMODIC CROUP.—This is the most frequent form of the disease, and is dependent, doubtless, on slight inflammation, giving rise to spasmodic contraction; cold and sudden atmospheric changes being the most frequent causes. Like mucous croup, it usually comes on at night, though the breathing may have been difficult with a croupy cough and voice through the preceding day. The child is usually awakened by difficulty of breathing, a hoarse, ringing, metallic cough, and a shrill whispering voice or ery. In some cases there is slight secretion, but in others none at all. The difficulty of respiration increases for a few minutes, or in some cases for an hour or two, then gradually passes off; sometimes there are marked exacerbations and remissions occurring every few minutes. There is but little derangement of the secretions or circulation, and it is not difficult to detect the spasmodic character of the affection.

DIAGNOSIS.—The peculiar cough, tone of voice or ery, and shrill respiration, is so characteristic that no one could mistake a case of croup for any other affection. When, however, we come to make the distinction between the varieties of the disease named we find considerable difficulty. In the mucous variety, there is the gurgling sound indicative of mucous accumulations; as it continues to accumulate, the respiration becomes more difficult, and when a portion is discharged by coughing, the patient seems relieved. In pseudo-membranous croup, there is the peculiar dry, metallic respiration, cough, and ery, with no evidence of secretion. In the spasmodic form, the disease is not so intense, we notice temporary relaxation of the larynx in which the child breathes freely, and there is but little if any constitutional disturbance.

PROGNOSIS.—In the mucous and spasmodic form of croup the prognosis is favorable; in the pseudo-membranous it is doubtful, prompt and efficient treatment being always required to effect a cure.

POST-MORTEM EXAMINATION.—The scalpel demonstrates conclusively in this affection, that spasmodic contraction of the intrinsic muscles of the larynx played an important part in rendering it fatal. In fact I do not believe that any would die if it were in our power to produce complete paralysis of these muscles in the early stage of the affection. In mucous croup

we find the mucous membrane reddened, slightly thickened, and sometimes with submucous infiltration; this does not, however, greatly lessen the caliber of the larynx. In addition there is more or less accumulation of mucus. In the pseudo-membranous form, the false membrane lessens the caliber of the larynx from one-fourth to one-third, there being still room for the passage of the necessary amount of air, if it were not for the contraction above named.

TREATMENT.—In *mucous* croup I generally employ equal parts of Acetous Tinctures of Lobelia and Sanguinaria, and Simple Syrup, giving it in teaspoonful doses sufficiently often to produce and keep up continuous nausea. Continuing this until from the peculiar loose, gurgling sound of the respiration and cough we know that the secretion is less tenacious, we carry it to thorough emesis. Sometimes this ends the disease, but at others it is necessary to still continue the remedy, and repeat the emetic two, three, or more times. As an adjuvant, though a very important part of the treatment, we use applications of Water and Vinegar to the throat, as hot as it can be borne, and renewed frequently, or the Compound Stillingia Liniment heretofore spoken of, or a plaster made by sprinkling Snuff on a cloth spread with Lard, or in quite young children, the Emetic Powder used in the same way. Counter-irritation to the spine, with the hot Mustard foot-bath, and the general sponge bath if the skin is dry and constricted, are very useful. Inhalations of Vinegar and Water, or of Vinegar, tend to relax the parts, and thus give temporary relief, and by rendering the mucus less viscid they aid the permanent cure.

In the *pseudo-membranous* variety, the indications are to produce relaxation and thus prolong the patient's life and give a longer time for the action of medicine, to cause effusion beneath the false membrane and break down its plasticity, and having thus caused its partial detachment, to cause its removal by an act of emesis. To fulfill the first indication, we direct the continuous application of flannel cloths, wrung out of hot water to the throat, the use of the Stillingia Liniment; or, if the case is urgent, the Oil of Lobelia applied freely. In addition, I have found inhalations of Vinegar of marked importance, and in some cases I have added the Extract of Belladonna and the Tincture of Gelseminum. Cups to the throat prove very serviceable in many cases, but rubefacients should not be

used. The hot Mustard foot-bath and counter-irritation to the spine are also useful.

Internally I employ, R, Acetous Tinctures of Lobelia and Sanguinaria, āā f℥j; Molasses, ℥j; Chlorate of Potassa, finely powdered, ℥j; mix, and give to a child two or three years old a teaspoonful every five or ten minutes, until nausea is induced, then less frequently. If there is much constriction of the skin and excitation of the pulse, I add the Veratrum in suitable doses. The remedy above named should be given without any fluid either before or after it, as we desire its local influence as it is swallowed, as much as its general influence when taken into the stomach; in no case should it be allowed to produce vomiting until we have direct evidence, in the gurgling and flapping sound of respiration, that the false membrane is becoming loosened. If the tendency to vomiting should be strong, I direct the sinapism to the stomach, and an infusion of Peach Bark with the nauseant, as an anti-emetic. A variable length of time will elapse before the pseudo-membrane will be loosened sufficiently to be discharged, sometimes five or six hours; in one case that I treated, sixty hours. When, from the sound, we are satisfied the detachment is sufficient to permit the evacuation of all or part, we induce speedy emesis, usually with an infusion of our common emetic powder, as preferable to the agents we have been using. The more thorough and effective the emetic, the greater the chance of safety, though in some cases we find the false membrane thrown up in shreds by coughing, without any indication for an emetic at all. Usually the Lobelia and Sanguinaria used as above directed, and continued for so long a time, act upon the bowels, sometimes giving rise to great irritation. In such case, agents to obviate this must be employed. The treatment is brief, but nothing can be added to it in our present knowledge of the *Materia Medica*, and there are no agents we can substitute for those named, and no preparations of the agents but the Acetous Tinctures.

Spasmodic croup is easily treated; very frequently the Compound Tincture of Oils of Lobelia and Stillingia, heretofore named, freely applied externally, with the internal administration of a drop every half hour or hour, on a lump of Sugar, answers our purpose. Or the warm Onion poultice to the throat with the internal use of almost any nauseant succeeds.

The compound of Lobelia, named under the head of mu-

cous croup, is very efficient; in fact, the entire treatment named there may be adopted in this case. Generally, however, the milder the measures for relief, the better it will be for the patient, as the stronger agents so change the action of the bronchial mucous membrane as to prove a source of difficulty.

APHONIA.

Aphonia or loss of voice may be either temporary or permanent, unless overcome by medicinal measures. In the first, the condition of the vocal cords is changed; in the second, a more permanent structural lesion of these, or paralysis of the nerves distributed to the intrinsic muscles of the larynx. Temporary aphonia in a greater or less degree is witnessed in acute or catarrhal laryngitis, and in croup, and in some cases of cold, in which it is the only indication of laryngeal affection. Permanent aphonia may result from thickening of the mucous membrane covering the vocal cords, from ulceration, or from change in the structure of the cords themselves, the result of inflammation. Or, as before stated, it may depend upon paralysis of the intrinsic muscles of the larynx, caused by inflammation, excessive exertion of the vocal organs, excessive emotional excitement, or from lesion of the brain, or of the nerves passing to the larynx.

SYMPTOMS.—In the first class of cases, the voice sinks to a whisper, and there are prominent symptoms of inflammatory disease of the larynx. In some of these cases, as has been determined by the laryngoscope, the inflammation is confined entirely to the vocal cords. In the second, if produced from inflammation, the voice is gradually lost, and from the persistent cough and mucus, or muco-purulent expectoration, we are satisfied as to the change of structure about the ventricle of the larynx. In cases of paralysis of the larynx, the loss of voice may have been sudden or gradual, and marked by inflammation or otherwise.

DIAGNOSIS.—A very important point to determine in this affection is the producing and continuing cause; the loss of voice is apparent to all. Having ascertained all the facts in relation to its commencement, we can readily determine whether inflammation has existed or not. If cough exists, if there is expectoration, with tenderness on pressure over the thyroid

cartilage, without bronchitis, we are satisfied that the inflammation continues in a chronic form; if the laryngoscope is used, the structural lesions can be accurately analyzed. If there is neither cough nor expectoration, nor soreness on pressure over the larynx, we may judge it to be paralytic. It must not be forgotten that the larynx is governed to a considerable extent by the *reflex* system of nerves, and a temporary aphonia may be the result of disease of other portions of the body, as in cases of hysteria.

PROGNOSIS.—It will be evident from the above that the prognosis will be dependent upon the cause and the persistence of the affection. In a large majority of cases the voice can be restored.

→ TREATMENT.—In the first class of cases we find but little difficulty in the treatment, as with the disappearance of the inflammation the voice is restored. In addition to the other means named, I have employed the Compound Tinctures of Oils of Lobelia and Stillingia as an external application, and as an inhalation, with marked advantage. As an inhalation, I direct that a coarse, open sponge be wrung out of hot water, and the Tincture, in small quantity, being dropped on it, it is held to the mouth, and the breath drawn through it. This will be found an efficient plan of using remedies in laryngitis. Counter-irritation seems to be productive of little benefit, but if the case is acute cups are used with advantage. In the treatment of laryngitis with aphonia, the treatment should be prompt and thorough, as the ventricle of the larynx, which is now ascertained to be affected, being the smallest part, may be speedily so closed as to arrest respiration.

In chronic cases, arising from inflammation of the larynx, the treatment proper for the laryngitis should be adopted. It is in these cases especially that stimulant applications directly to the part affected have been found beneficial. The Nitrate of Silver solution is generally relied upon, but, from the difficulty in its use, is not generally applicable. The inhalations recommended under the head of chronic laryngitis are most applicable in these cases, with counter-irritation externally, if there is much irritation, and stimulant applications if there is atony.

In aphonia from paralysis, stimulant inhalations are sometimes very efficient, as for instance: *R*, Oil of Cajepunt, Oil of Stillingia, āā , ʒj ; Alcohol, ʒij ; to be used with the sponge as recommended above. The Oil of Sassafras, and Hemlock,

with Alcohol, in the same proportions, is also good, as is also the Vinegar of Sanguinaria, Tincture of Myrrh, Balsam of Tolu, etc. Stimulant applications externally, in the milder cases, are effectual; a tincture of any of the essential oils may be employed, but I prefer R, Oil of Sassafras, Oil of Cajepu, Oil of Stillingia, āā, ʒj; Alcohol, ʒiij; mix, and apply freely and frequently. Electricity in the form of the Electro-magnetic or Galvanic current passed through the larynx, and from the occiput downwards through it, is frequently a great aid to the treatment. Internally, the Extract of Nux Vomica or Strychnia, or, in some cases, Belladonna or Ergot may be beneficially used.

ACUTE BRONCHITIS.

Acute bronchitis may be divided into three varieties: First, common catarrhal bronchitis; second, sthenic bronchitis; third, asthenic bronchitis. The first of these has sometimes been denominated cold in the chest, the inflammation being subacute as in common catarrh. In the second the inflammation is active, and the disease consequently severe. The third is inflammation of an asthenic character, and occurs in persons of feeble vitality, or where there is especial loss of tone in the respiratory passages.

SYMPTOMS OF CATARRHAL BRONCHITIS.—This affection commences as a common cold, the patient feels dull and languid, frequent chilly sensations alternated with flushes of heat, increased secretion from the nose, dry skin, constipation of the bowels, and headache. In a short time the patient complains of a sense of dryness and roughness, and makes frequent attempts to clear the throat. A hard, dry cough, more or less hoarse, is soon developed, and seems to be rendered much worse by tickling in the fauces. The voice is frequently hoarse, there is a sense of tightness and constriction of the thorax, with slight pain or soreness in coughing or drawing a long breath. In some cases the febrile reaction is quite marked for the first two or three days. By the second or third day, the patient commences to expectorate a thin silary fluid, which, rising to the glottis, greatly increases the desire to cough. By the fourth or fifth day the secretion has increased in quantity, is yellowish and opaque, and is raised with greater freedom. The constitutional symptoms now dis-

appear, though the cough may continue for several days, and the patient soon recovers.

SYMPTOMS OF STHENIC BRONCHITIS.—Sthenic bronchitis is frequently preceded for a short time by coryza, oppression of the chest, languor, listlessness, arrest of the secretions, etc. In a short time marked chills or rigors are noticed, sometimes the chilly sensation will continue for twelve or twenty-four hours, not very severe, but annoying to the patient. The chill is followed by fever, generally remittent in character, being the highest in the afternoon and evening; the skin is hot, dry and husky, the pulse frequent and hard, the mouth dry, tongue coated white and contracted, bowels constipated, and urine scanty and high colored. With the first appearance of febrile reaction a hard, dry and deep cough makes its appearance, the respiration becomes laborious, and there is dyspnoea and oppression of the chest. Generally within the first twenty-four hours a dull pain is experienced on coughing.

About the third day we find the cough violent and harassing, it is still dry and productive of pain, the thorax seems sore as if bruised, and respiration is more difficult; the pulse is more frequent, and the secretions still farther arrested. The tongue is now coated and foul, and the appetite entirely gone; the patient is restless and uneasy, and sleeps poorly at night on account of the cough and difficult respiration. If we examine the thorax during this stage of the disease, we will find that the respiratory murmur is masked by a dry sound developed in the bronchial tubes, the result of inflammation: this sound approximates that produced by blowing through a dry tube, and is termed the *sibilant* roushus, or whistling respiration. The extent of the thorax over which this sound is heard, determines the extent of the bronchitis. We distinguish it from the bronchial sound produced by consolidation of the lungs, by percussion which gives normal resonance.

Expectoration commences from the third to the sixth day. At first it is a clear, transparent mucosity, secreted in small quantity, and raised with difficulty. In a day or two it is a tough glairy mucus, resembling white of egg, and in most cases streaked with blood. As a general rule, it may be stated, that the greater its tenacity, the more intense the inflammation of the mucous membrane secreting it. This mucus is expectorated with difficulty; it accumulates, gives rise to

cough, which is much protracted, lasting sometimes for minutes before the adhesive mucus gives way. The physical signs have not yet changed materially, though the sibilant rhoncus has become modified, and as mucus accumulates previous to coughing, is changed to a mucous sound. The febrile symptoms are still intense, and the difficulty of respiration, and oppression of the chest as great.

From the fifth to the eighth day a marked change is noticed in the mucus expectorated, it now contains opaque, yellowish, greenish, or white masses, suspended in the glairy mucus. These increase in quantity as the disease progresses, until the entire expectoration possesses these properties. We now notice a marked change in the physical signs, the sounds being moist, and are termed *mucous rhonci*. With this change in the expectoration the fever gradually abates, the secretions are restored, the appetite returns, the patient rests at night, the cough not being so troublesome, and the breathing becomes easy. The amendment continuing, by the eighth to the twelfth day the patient is convalescent. This may be said to be the natural course of the disease; but these changes can be very much accelerated by medicines, and the disease made to run a much shorter course.

Sthenic bronchitis does not always terminate thus favorably. Occasionally it is noticed that about the fifth or eighth day, when improvement should have commenced, that the respiration becomes laborious, the patient complains of great oppression of the chest, wants his shoulders propped up, and his arms out to bring into play the external inspiratory muscles. The system now begins to exhibit the evidences of imperfect aeration of the blood, in the purplish color of the lips and tongue, and the livid paleness of the surface. The expression of the countenance is anxious and distressed; delirium comes on, at first partial, at last complete, the extremities are cold, at last the entire surface is cool, and bathed with a cold, clammy perspiration, and the patient dies asphyxiated.

DIAGNOSIS.—The diagnosis in this disease is not difficult. The marked fever and arrest of secretion, determines an acute inflammation; the cough, oppression in the chest, and dull, obtuse pain, that the respiratory organs are affected; the sibilant followed by the mucous rhoncus, with resonance on percussion, that it is confined to the bronchial tubes. The

stage of the disease is determined by the expectoration, rhoncus, and the general symptoms.

PROGNOSIS. — Though a severe disease, we do not look upon it as a fatal one, though occasionally from its intensity it becomes difficult to manage. If secretion commences, becomes opaque, easily expectorated, with an abatement of the fever, the case is progressing well, but if symptoms of imperfect depuration of the blood are developed, with delirium, the case is a grave one. During the disease, if the sputa changes from an opaque to a glairy white mucus, we may be satisfied that the inflammation is redeveloped in its original intensity.

POST-MORTEM EXAMINATION. — If a patient suffering from acute bronchitis should die of some other affection, we would find the bronchial mucous membrane thickened and red, and bathed with the secretion expectorated previous to death. When the disease terminates fatally itself, the mucous membrane has been found red and thickened, and affected throughout the lung, and the bronchial tube more or less choked up with accumulated mucus.

SYMPTOMS OF ASTHENIC BRONCHITIS. — This is the *peripneumonia notha* of authors and generally occurs in very young or old persons, or in those of exhausted constitution, or who have been liable to coughs with profuse watery expectoration. It usually commences with symptoms of cold and oppression in the chest, with slight febrile reaction. The cough is severe, occurring in paroxysms, the breathing is oppressed, laborious and wheezing, the expectoration scanty at first, soon becomes abundant, thin and frothy. The pulse is quick, small and irregular, the heat of the surface but little if any increased, the extremities generally being cool; the tongue is loaded with a foul, dirty mucus, the appetite is gone, and the bowels constipated at first, become irregular as the disease advances. As the disease becomes more intense, the countenance is pale and anxious, there are exacerbating fits of dyspnoea, in which it seems almost impossible for the patient to breathe, and if the patient attempts to take a full breath to relieve this, or changes his position, a severe fit of coughing is brought on, sometimes terminating in vomiting which gives temporary relief. If the case terminates fatally, the tongue becomes livid, the face dusky, the patient can not lie down, and if he sleeps it is but for a few moments, and wakes threatened with

impending suffocation, delirium sets in, with cold, clammy perspiration, and the system is soon exhausted.

In weak and poorly nourished children, this disease is of frequent occurrence. At first it is noticed that the little patient has a protracted chill, followed by febrile exacerbation. The fever is higher in the afternoon, but becomes less and less marked as the disease advances. Respiration is quick and wheezing, the pulse frequent and full, though soft and easily compressed. The cough is persistent, deep and hollow, the expectoration, at first a viscid mucus, becomes, as the disease advances, yellowish, greenish and opaque. Dyspnœa is marked when the disease is fully developed, and coming on in paroxysms it is followed by a long harrassing cough, which frequently terminates in vomiting, giving relief for the time being. The disease sometimes continues for days, or even weeks, terminating favorably; or the dyspnœa becoming more intense, we observe symptoms of asphyxia rapidly increasing, and the child dies of apnœa.

DIAGNOSIS.—We form our diagnosis in this affection, by the low grade of febrile reaction, marked derangement of function, and prostration, that the inflammation is asthenic; by the cough and difficulty of respiration, that the respiratory organs are the seat of the disease, and by the presence of the mucous rhoncus and resonance on percussion, that the bronchial tubes are the parts involved.

PROGNOSIS.—When the disease is mild, a favorable prognosis may be given, but when severe, it is an exceedingly dangerous affection, and our prognosis must be guarded.

TREATMENT.—In catarrhal bronchitis, as well as in the sthenic form, our object is to arrest the inflammation at once; in the early stage this can be accomplished. Thus, if we induce copious perspiration, by the use of the spirit vapor bath, and the internal administration of the Compound Tincture of *Serpentaria*, or an infusion of *Asclepias*, *Eupatorium*, *Polygonum* or other efficient diaphoretic, following with small doses of some nauseant expectorant, as *R*, Acetous Emetic Tincture and Simple Syrup, *āā*, administered in teaspoonful doses every hour until expectoration is established, we accomplish our object. We reach the same end by the administration of a thorough emetic, followed by warm diaphoretic infusions, and a nauseant expectorant. Or early in the disease *R*, Tincture of *Gelsemium*, *3j*; Acetate of Potassa, *3ss*;

Water, 3iv; mix. and give in teaspoonful doses every two hours; a free action on the bowels with the Compound Podophyllin Pill, assists very much in the cure. The warm bath, with inhalations of equal parts of Vinegar and Water, and the use of small doses of Tincture of Veratrum and Aconite, will also prove efficient. If the cough continues, treat it as hereafter recommended.

In the first stage of sthenic bronchitis we endeavor to arrest the fever, and obtain secretion, which, if accomplished, arrests the disease. Several modes of treatment are adopted to accomplish this, but all of them are either directly or indirectly sedative. A very pleasant and efficient plan is to put the patient on the use of special sedatives; R, Tincture of Veratrum, 3j; Tincture of Aconite, 3ss; Tincture of Gelseminum, 3ss; Acetate of Potassa, 3iij; Water 3vi; mix, and give a teaspoonful every hour. This should be assisted by the hot foot bath and hot fomentations applied to the thorax, and inhalations of aqueous vapor, the air of the room being kept continually moist. With this treatment the patient is usually convalescent by the fifth day, and there is rarely any subsequent cough and expectoration. If it is preferred, an emetic of the Compound Powder of Lobelia and Capsicum in infusion, may be administered so as to produce protracted nausea, then thorough emesis, and its diaphoretic influence continued by the hot foot bath, hot applications to the extremities, fomentations to the chest, and the administration of some warm diaphoretic infusion. This, followed by the administration of a saline diuretic, and a cathartic if necessary, and occasionally small doses of the sedatives, frequently arrests the disease. Or sedation may be effected by the employment of the spirit vapor bath, and the use of nauseant diaphoretics, with the other measures named above. Formerly the treatment consisted in the administration of nauseants to favor secretion, and diaphoretics, diuretics, and cathartics to start the excretions; if properly pursued, it is very effectual. Lobelia, Sanguinaria and Ipecacuanha were the remedies most frequently employed, and in order to obtain the full benefit from their administration, they should be employed in such doses, and at such times as to produce continuous nausea; if given at long intervals so as to allow the nausea to pass off between the doses, the treatment is frequently unsuccessful.

With the means named above, expectoration is usually

established in a couple of days, and the severer symptoms mitigated. It was remarked in the description, that the fever was usually remittent, the paroxysms occurring in the after part of the day. This would indicate the employment of Quinia, but we do not find that it has been generally adopted. At this stage of the affection I invariably give Quinia, unless there are symptoms contra-indicating it. The old formula, \mathcal{R} , Quinia Sulphas, gr. xx; Ferri-ferroeyanuretum, grs. x; M, F., Pulvis, No. vj., two or three of the powders to be taken in the forenoon, at intervals of three hours. This usually arrests the fever, and consequently modifies the inflammation. The employment of the saline diuretics should not be overlooked; it is true they are not expectorants, but they do what expectorants do not — remove the products of inflammation in a natural manner. During the second stage the nauseant expectorants will sometimes have to be continued, to prevent the arrest of the secretion, and to quiet the cough. Occasionally expectoration being too free, stimulant expectorants will have to replace them, as \mathcal{R} , Syrup of Senega, Syrup of Tolu, Camphorated Tincture of Opium, \mathfrak{aa} , $\mathfrak{z}\mathfrak{i}\mathfrak{j}$; dose a teaspoonful every two or three hours. Or, an infusion of equal parts of Senega and Trillium, or \mathcal{R} , Syrup of Squills, Essl. Tincture of Asclepias, \mathfrak{aa} , $\mathfrak{z}\mathfrak{i}\mathfrak{j}$; Syrup of Sanguinaria, $\mathfrak{z}\mathfrak{j}$; M., and give a teaspoonful every three hours.

In the severe cases named, the treatment must be prompt and thorough. Wet cups to the thorax, followed by hot fomentations, stimulant applications to the surface and especially the extremities, with the nauseant expectorants combined with stimulants internally, are the means generally pursued; I prefer the emetic, and would much sooner trust my life to it than to any other means. The Acetous Emetic Tincture is the best agent, given in tablespoonful doses, with warm Ginger tea, every ten minutes, until it operates thoroughly. Afterwards the other means can be employed. Quinia and stimulants are useful agents in these cases after the congestion is removed, but a sufficient quantity of some special sedative (I prefer Aconite), must be given to prevent undue rapidity of the circulation.

The treatment of *asthenic* bronchitis differs very materially from the other forms; the feeble condition of the system, imperfect circulation, and relaxation of the bronchial mucous membrane, must be taken into consideration. In the milder

cases, the administration of stimulant expectorants, with Quinia and stimulants, thorough measures to produce an equal circulation of blood and thus prevent congestion of the lungs, are the principal means of cure. As an expectorant in these cases: \mathcal{R} , Acetous Emetic Tincture, Syrup of Squills, Syrup of Senega, āā ; to be administered in teaspoonful doses every two, three or four hours. The formula of Dr. Stokes answers well in some cases— \mathcal{R} , Decoct. Polygala, 3v ; Syrup, Tolut, 3ss ; Tinct. Opii Camph., Tinct. Scillæ, āā . 3ij ; Carb. Ammonia, gr. xx; M.; dose, a tablespoonful every two hours. The Asarum Canadense will be found a good agent in these cases, as will also the Achillea and Trillium; or \mathcal{R} , Oil of Stillingia, 3ss ; Alcohol, 3ij ; Essl. Tinct. Achillea, 3ij ; M; dose, one third of a teaspoonful every two or three hours, in Mucilage of Gum Arabic.

Dry cups to the thorax, followed by the Comp. Stillingia Liniment will prove valuable; or if a child, a cotton cloth large enough to cover the breast spread with Lard, and the Emetic Powder sprinkled on it and applied to the thorax. Stimulant baths can not be dispensed with; I employ Tinct. of Capsicum and water, sufficiently strong to produce an agreeable warmth of the surface, and stimulate normal capillary circulation. Quinia proves very useful given in the early part of the day, especially if there are evening exacerbations.

In the severe cases I prefer to commence the treatment with an emetic; the Comp. Powd. of Lobelia and Capsicum answers well. It should be given so as to produce prompt and thorough emesis, and repeated as often as the condition of the patient demands it. The treatment named above may then be pursued. Inhalations prove servicable in this disease, I generally employ the vapor of Vinegar, with the addition of Morphia if the irritation inducing the cough is severe, or Nitrate of Potassa if there seems to be spasm of the bronchial tubes.

CHRONIC BRONCHITIS.

Chronic inflammation of the bronchial mucous membrane is of frequent occurrence and may result from many causes. A badly treated acute bronchitis may terminate in the chronic form, or an inflammation of the lungs may set up a subacute

bronchitis which will continue after the original disease has subsided. The most frequent cause is doubtless the neglect of catarrhal bronchitis; the acute symptoms ceasing, the patient pays but little attention to the cough, and the persistent chronic disease is the result. In many cases the progress of the disease is slow and insidious, in others quite rapid. In the first case the patient is troubled with cough during the winter and spring months whenever exposed to the cold, but which passes away with the return of warm weather. The next winter he seems to catch cold easier, and the cough is more persistent, and does not entirely disappear during the summer. With the return of cold changeable weather all the symptoms are aggravated, and the general health suffers, the disease being permanent. Thus one, two, or more years may be required for its development; in other cases, it follows "the cold in the chest," or the acute attack.

SYMPTOMS.—In chronic bronchitis, we have both local and general symptoms. Cough seems to be at once the most characteristic as well as troublesome feature. The cough is persistent and annoying, generally of a deep bronchial character, but sometimes short and hacking, at others asthmatic. It is dry or moist, depending upon the amount of secretion from the bronchial mucous membrane. Sometimes it is attended by a dull, heavy, aching pain or sense of soreness on coughing. At others the chest is entirely free from pain.

Expectoration varies greatly as regards quantity and appearance. Sometimes it is very scanty, the cough being dry and harsh; at others there does not seem to be any great accumulation in the bronchial tubes, though expectoration in moderate quantity attends each paroxysm or cough; lastly, we observe cases in which expectoration is profuse, the patient being obliged to cough to remove the accumulations from the chest. We thus divide chronic bronchitis into two marked varieties: *bronchitis with deficient secretion* and *bronchitis with profuse secretion*. The material expectorated varies from a thin, transparent, adhesive mucus, to a yellowish or greenish opaque mucus or muco-pus, of a more or less offensive character.

The physical signs are marked; on applying the ear to the chest we find that the normal respiratory sounds are masked by those developed in the bronchial tubes. It will be recollected that bronchial sounds are only heard in the normal condition of the respiratory organs, over the larger bronchial

tubes between the scapula, and that their development over other portions of the thorax is indicative of disease. To determine whether it is the result of solidification of the lungs, or of morbid changes in the bronchial tubes, we resort to percussion; if there is dullness, it depends at least to considerable extent upon solidification, if there is normal resonance, of course the cause must exist in the bronchial tubes alone. The character of the sound determines to some extent the condition of the mucous membrane; thus a *sibilant* rhoncus being heard, we know there is deficient secretion, and that the dryness is marked by the degree of whistling in the respiration; if a *mucous* rhoncus is heard, that secretion is established, and in proportion to the amount of gurgling; a deep gurgling or flapping sound, that there is great relaxation and atony of the mucous membrane.

The general symptoms vary greatly in different cases; sometimes the disease continues for years, and seems to exert but little influence upon the health of the patient, but sooner or later the patient loses flesh and strength, and the various functions are disordered. Generally, when chronic bronchitis is established, it is observed that the patient becomes anæmic, the appetite is impaired, the circulation deranged, and the secretions unfavorably affected. The disease progressing, the loss of strength and flesh is marked, the patient is unable to follow his usual employment, his spirits are depressed, and he gradually sinks, or tubercles of the lungs are developed, and he dies of consumption.

DIAGNOSIS.—We have to diagnose chronic bronchitis from chronic laryngitis and phthisis. In the first we have the well marked bronchial sounds, either sibilant or mucous, developed over all or a considerable part of the thorax; in the second no such sound exists, but instead we have the morbid sensations, soreness and pain confined to the larynx; in the third, the bronchial sounds are absent, or, if present, are accompanied with dullness on percussion, especially marked over the upper lobes of the lungs.

PROGNOSIS.—The prognosis may be considered favorable unless the disease has progressed too long, or there is profuse secretion, with great relaxation and debility; in this case our prognosis should be guarded.

POST-MORTEM EXAMINATION.—Usually the mucous membrane presents a livid, violet colored or brownish tint, instead of the

light redness of the acute disease. The other changes are thickening of the mucous membrane, ulceration, softening and dilatation of the bronchi. The changes in other portions of the body will be dependent upon the complications preceding death.

TREATMENT.—The treatment of chronic bronchitis may be properly divided into general and local, and as much importance attaches to the one as the other, of course the general treatment will have to be varied according to the complications; but the following points deserve especial attention. The appetite and digestion being frequently impaired, it is necessary to administer such mild tonics as improve the tone of the digestive apparatus, and at the same time improve the quality of the blood. Frequently these can be selected with reference to their action, either direct or indirect, on the pulmonary mucous membrane. The bitter tonics, the mineral acids, Hypophosphites and Nux Vomica, are found important curative means. The excretions must be restored, and to accomplish this the milder agents are of greatest utility. The bowels being constipated, mild laxatives are indicated. The secretion of the kidneys affected, those agents termed alteratives, that are known to facilitate this secretion, are the best adapted. The skin demands our especial attention, from the intimate sympathy existing between this membrane and the mucous lining of the body. If it is dry and harsh, the use of the alkaline sponge-bath, with brisk friction, seems to be of much benefit; if there is imperfect capillary circulation, with coldness of the extremities, the Capsicum bath is important; and if there is much relaxation, the addition of an infusion of some bitter tonic, or astringent. Iron is useful in cases of anæmia or imperfect nutrition, the Hypophosphites, Sulphur, and Quinia, when there is deficient innervation, and Nux Vomica or other permanent stimulants when the patient exhibits an apathy not accounted for by the symptoms of the disease.

Those cases in which the expectoration is scanty, or in which the cough is dry and harsh, are benefited usually by the employment of the nauseant expectorants, to increase secretion. The Lobelia, Sanguinaria, Ipecacuanha, etc., can be employed for this purpose with advantage, and it is generally a good plan to combine with them a *demulcent* to relieve the dryness and irritation of the throat and fauces, and a nar-

cotic to allay the morbid irritation of the nervous system: thus, \mathcal{R} , Tincture of Lobelia, $\mathfrak{z}\text{j}$; Mucilage of Convallaria, $\mathfrak{z}\text{ij}$; Syrup of Lemon, $\mathfrak{z}\text{j}$; Extract of Belladonna, gr. x, vel, Hyoscyamus, gr. xx; \mathcal{M} .; dose, a teaspoonful every one or two hours. Inhalations of the vapor of Water, or equal parts of Water and Vinegar, is of much advantage in many cases, and, if need be, a narcotic or sedative can be added to assist in arresting the cough. It has been argued by some that the vapor might be rendered emollient by using, instead of simple Water, a decoction of Marsh Mallows or Linseed; or both emollient and sedative, by using an infusion of Hops, Hyoscyamus, Stramonium, etc.

Very great advantage is derived from the use of judicious counter-irritation to the chest in all cases of this disease, when the patient's strength will permit. The most efficient agent is the Irritating Plaster of the Dispensatory, though it need not, in a majority of cases, be carried to suppuration.

In those cases in which there is constant expectoration, though not profuse, the main object is undoubtedly to relieve the irritation and arrest the cough, and by the general medication remove the effects of the disease. For the relief of the cough numerous remedies have been advised. The nauseant expectorants are still employed in this case, though in smaller doses. As an example of such combination, I may instance the Compound Syrup of Lobelia, described on page 677, *Materia Medica*, and the first six formulas in the Appendix, page 954; or we use them combined with the stimulant expectorants, as, \mathcal{R} , Syrup of Lobelia, Syrup of Senega, Syrup of Althæa, $\mathfrak{a}\mathfrak{a}$, $\mathfrak{z}\text{ij}$; Tincture of Hyoscyamus, $\mathfrak{z}\text{ss}$; \mathcal{M} .; dose, a teaspoonful every two hours. We may dispense with nauseants entirely, and depend upon demulcents and narcotics or sedatives for the relief of irritation and arrest of the cough, as in the old formula: \mathcal{R} , Pulverized Acacia, $\mathfrak{z}\text{ij}$; Mist. Amygdal. Dule. et Mist. Camphoræ, $\mathfrak{a}\mathfrak{a}$, $\mathfrak{z}\text{ijss}$; Acid Hydrocyanica, gtt. xij; Spir. Æther, Sulp. Camphor, $\mathfrak{z}\text{ij}$; Oymellis Scillæ, $\mathfrak{z}\text{ss}$; \mathcal{M} .; dose, a teaspoonful every two or three hours. Inhalations are employed in these cases with advantage; usually the simple vapor of Water and Vinegar, or medicated with the narcotics or sedatives to allay irritation, are the ones giving the best results. As examples of sedative inhalations: \mathcal{R} , Acid Hydrocyanici, $\mathfrak{f}\mathfrak{z}\text{ij}$; Vinum Ipecac, Tinctura Opii Camphorata, $\mathfrak{a}\mathfrak{a}$, $\mathfrak{f}\mathfrak{z}\text{ss}$; Tinctura Conii, $\mathfrak{f}\mathfrak{z}\text{ij}$; Aquæ Rosæ, $\mathfrak{z}\text{xij}$; \mathcal{M} .; inhale

half an ounce three times a day; or, \mathcal{R} , Aetum Lobeliae, $\mathfrak{f}\mathfrak{z}\mathfrak{i}\mathfrak{j}$; Tinctura Conii, Tinctura Stramoniae, $\mathfrak{a}\mathfrak{a}$, $\mathfrak{z}\mathfrak{j}$; Tinctura Opii, $\mathfrak{f}\mathfrak{z}\mathfrak{s}\mathfrak{s}$; Cyanuret of Potassæ, gr. x; \mathcal{M} .; a half teaspoonful may be added to half an ounce of Barley Water, and inhaled every three hours. I have also employed the Compound Tincture of Oils of Lobelia and Stillingia in this way, a few drops being poured into a vessel of boiling Water, and the vapor inhaled.

When the expectoration is profuse, stimulant expectorants are usually employed. In this class we find the Senega, Squills and some other agents, and the balsamic expectorants. I have used in this, as well as the other cases, the Compound Tincture of Oil of Lobelia, heretofore named, with marked advantage for the relief of the cough. It should be administered in drop doses every three or four hours on a lump of sugar. To arrest the secretion, I am using a new class of agents: they are the Collinsonia Achillea, Ptelea, Trillium, Lycopus, Polygonum, and Euonymus, usually in the form of essential tinctures. The first three I have found very efficient, acting as gentle tonics and stimulants, improving the appetite and digestion, restoring the excretions, and, at the same time, relieving the irritation of the pulmonary mucous membrane. The Trillium is a fine agent when the secretion is excessive, the Polygonum when there is torpid circulation of blood, and dryness of the skin, and the Euonymus in cases where hectic fever and night-sweats are developed. The balsamic expectorants are employed in many combinations, as, \mathcal{R} , Balsam of Fir, Balsam of Tolu, Balsam of Peru, $\mathfrak{a}\mathfrak{a}$, $\mathfrak{z}\mathfrak{j}$; Oil of Anise, $\mathfrak{z}\mathfrak{s}\mathfrak{s}$; Opium, $\mathfrak{z}\mathfrak{j}$; Honey, $\mathfrak{z}\mathfrak{i}\mathfrak{j}$; Rum (best Jamaica), $\mathcal{O}\mathfrak{j}$; mix, shake well, and take one or two teaspoonfuls every three or four hours. Balsam of Copaiba has been employed with advantage, as, \mathcal{R} , Copaiba, $\mathfrak{z}\mathfrak{j}$; Balsam of Fir, Sweet Spirits of Nitre, Honey, $\mathfrak{a}\mathfrak{a}$, $\mathfrak{z}\mathfrak{s}\mathfrak{s}$; \mathcal{M} .; dose, a teaspoonful three or four times a day, in simple Syrup, or in mucilage of Gum Arabic.

Stimulant inhalations are sometimes of benefit in these cases; among the agents used for this purpose, may be named the expectorant gum resins, Tar, Creosote, Myrrh, Ammonia, Iodine, Chlorine, Bromine, infusion of Podophyllin, Iris, Sanguinaria, Xanthoxylum, etc. Care must be used in the employment of these agents, that they do not give rise to irri-

tation, and that they are so largely mixed with air, as not to interfere with respiration.

PNEUMONIA.

Inflammation of the parenchyma of the lungs is a disease of frequent occurrence, and involving, as it does, so important a structure, its effect upon the general system is proportionately severe. The extent of the inflammation varies in different cases; sometimes but a portion of one lung is involved, at others, one entire lung, and lastly, both lungs may be involved in the disease. If the inflammation is confined to one lung, it is termed *single*, if it affects both, *double* pneumonia, the last being a very severe disease.

Pneumonia is, in a large majority of cases, produced by cold; in the exceptional cases by irritant materials inhaled, or as the result of injury. The action of cold upon the system, and its influence in producing disease, has been already considered, and it is only necessary to notice here that previous exhaustion, and sudden arrest of the cutaneous secretion, are almost invariably noticed.

SYMPTOMS.—Generally the disease is preceded for a day or two by premonitory symptoms, as, oppression of the chest, quickness and shortness of breathing, quick, short cough, dullness and languor, occasional sighing, and more or less chilly sensations and coldness of the extremities. The inflammation is usually ushered in by marked chills or rigors, continuing from one to two or more hours. There is now an increase of the symptoms before named, general uneasiness, and a dry and suppressed cough. With the disappearance of the chill, febrile reaction comes up, the pulse is frequent and hard, the skin dry and hot, appetite impaired, tongue coated white, bowels constipated, and urine scanty. Respiration is more short, frequent, anxious and difficult, and attended with unusual expansion and elevation of the chest; there is a frequent short cough, and increased warmth and moisture of the expired air. Upon auscultation we find that the respiratory murmur is replaced by the *crepitant* rhoncus, there is no bronchial sound, and no dullness on percussion. During this period the cough has been dry, or, if any expectoration, it is thin, transparent, or frothy.

By the third or fourth day, we find that the patient

unable to take a deep inspiration, respiration being performed principally by the diaphragm and abdominal muscles. He lies in preference upon the affected side, or, in double pneumonia, upon the back. There is a constant feeling of uneasiness rather than pain in the chest, with anxiety, sense of constriction, weight and fullness, and of internal heat. In some cases there is constant restlessness, with frequent attempts to elevate the head and shoulders. Now, the crepitant rhoncus disappears, and is replaced by a mucous rhoncus; percussion gives increasing dullness over that portion of the lungs involved in the inflammation. This indicates hepatization, which, increasing, gives rise to extreme dullness on percussion, and to a remarkable clearness of the bronchial sound, and to broncophony.

The cough, which has generally increased up to this time, is now attended with expectoration of an opaque mucus, which becomes characteristic about the fifth or sixth day. The sputa is of a yellowish, reddish, or more frequently, rusty tinge, semi-transparent, tenacious and globular; when discharged into a vessel, it runs together, forming a single mass, so tenacious that the vessel may be inverted without detaching it. The rusty sputa has been considered as pathognomonic of pneumonia.

By this time the dyspnoea is much increased, the inspirations being obviously short and quick. If the disease is extensive, the oppression becomes urgent, and the sense of weight and anxiety are extreme. About the fifth or sixth day in favorable cases, the disease commences to decline, the inflammation terminating by resolution. The cough becomes looser and less distressing. The expectoration less viscid and rusty-colored and more abundant, resembling the sputa of bronchitis, the pain and dyspnoea are gradually relieved, the febrile symptoms disappear, and the patient is convalescent at about the seventh to the ninth day of the disease.

Otherwise, the hepatization goes on, the dyspnoea is increased, and so urgent is the call for breath, where a large portion of the lung is involved, that the patient has to have the head and shoulders raised, and call into action the external inspiratory muscles. The inspirations are short, forced and rapid, sometimes from 40 to 60 per minute. The cough is persistent and extremely annoying, the viscidness and color of the sputa corresponding to the intensity of the disease. The general

symptoms correspond with the local, the pulse is increased in frequency to 120 or even 140 beats per minute, and is small and hard, or soft and fluent; the skin is hot, dry and rough; the tongue is heavily coated with a brownish, offensive mucus, which becomes darker as the disease advances, sordes appearing around the teeth. The patient becomes delirious, at first but partially and for a portion of the day, but finally it becomes continuous, and sinks into a low, muttering delirium or into coma. The symptoms above named, extend over a period of one or two weeks, sometimes coming on rapidly, in others very slowly; the disease terminating fatally in some by the twelfth day, in others in three or four weeks, or the patient recovers after this, having worn the disease out.

In the suppurative stage, or stage of gray hepatization, the symptoms are all asthenic. The sputa is either a purplish-red mucosity, or a homogenous, light, yellow-colored purulent matter, of the consistence of cream, or a prune-juice-like material. The physical signs are, intense dullness on percussion, and a muco-crepitant sound on auscultation, very distinctive in character.

Pleuro-Pneumonia.—The symptoms of pleuro-pneumonia differ from pneumonia proper in little more than the development of pain, and consequent increased difficulty of respiration. The pleuritic combination is seldom so severe as to increase the intensity or danger of the principal affection. Rarely we find a case in which an intense inflammation of the pleura and lung occur together, producing a very serious affection, the symptoms being then of an acute pleurisy, followed by those of pneumonia.

Typhoid Pneumonia.—It might be supposed that what is termed typhoid pneumonia should receive an extended description; I am of the opinion, however, that 90 per cent of these cases are those heretofore spoken of as typhoid fever with pneumonic complication, or badly treated cases of ordinary pneumonia. I have already given it as my opinion that any fever may run into a slow ataxic or typhoid fever, so may an inflammation with its accompanying fever. We have a class of cases, however, that might properly be termed typhoid, inasmuch as the symptoms are all indicative of feeble vitality, and there is rapid change in the constitution of the blood.

The symptoms in these cases are: a protracted chill, febrile reaction coming up slowly; the pulse frequent, soft and fluent;

heat of the surface not greater than natural; coldness of extremities; bowels easily acted upon or tendency to diarrhœa; limpid, frothy urine; dirty coating of the tongue; and especially that dullness and indifference so characteristic of typhoid or typhus diseases. The inflammation in this case is ataxic; there is difficult breathing and cough, with watery expectoration. Physical examination gives us rapidly increasing dullness on percussion to a certain degree, at which point it remains sometimes during the entire progress of the disease; there is no crepitant rhoncus, and the mucous rhoncus sounds distinct and hollow. This condition is of variable duration, sometimes the disease is slow and protracted to weeks, at other times it is rapidly fatal.

DIAGNOSIS.—In general the diagnosis of pneumonia is easily made, the cough and difficult breathing directs attention to the thorax as the seat of the disease, the crepitant rhoncus in the first stage, and the mucous rhoncus and dullness on percussion and rusty-colored sputa in the second stage, are certain evidences of the affection. The amelioration of the symptoms from the fifth to the seventh day, give evidence of a resolution and subsidence of the disease; the aggravation of the general symptoms, with increased dullness on percussion and difficulty of respiration, that the structure of the lung is being endangered. The prune-juice expectoration, or light-colored purulent sputa that the structure of the lung is breaking down.

PROGNOSIS.—We may anticipate a favorable termination in a large majority of cases. In fact, we do not consider any dangerous, unless both lungs are affected, or typhoid symptoms are manifested from the commencement. In a majority of cases the disease can be arrested before there is much exudation into the structure of the lung, and consequently all danger avoided.

POST-MORTEM EXAMINATION.—In the early stage of the disease, the density of the lungs is slightly increased, they are reddened, and exhibit evidence of determination of blood. In the stage of hepatization, the density of the lung is so great that it sinks in water; if an incision is made into it, the cut surfaces vary from a pinkish-brown to a reddish-gray color, with sometimes more or less black pulmonary matter, or numerous little points of lighter color than the lung itself. The solidification appears to be dependent in part upon the exudation of coagulated lymph, but principally on an engorgement

of the lung with blood. In the stage of gray hepatization or interstitial suppuration, the lung is still dense, and where an incision is made into it, seems to be mottled with yellow; pressure applied to the lung when thus incised causes an exudation of yellowish, purulent matter from the cut surface.

TREATMENT. — As before remarked, I am satisfied that pneumonia can be arrested in its early stage, before hepatization has commenced, and all danger to the structure of the lungs thus avoided. The treatment for the accomplishment of this object must of course be resorted to early in the disease. Several plans of treatment may be pursued, as we found to be the case in the treatment of acute bronchitis, the indications being to effect sedation, and establish excretion, which being accomplished, an acute inflammatory action can not go on. I generally employ the direct sedatives, as, *R*, Tincture Veratrum, $\text{f}\text{3j}$; Tincture Aconite, $\text{f}\text{3ss}$; Essl. Tincture Asclepias, $\text{f}\text{3j}$; Aqua, 3v ; *M.*, and give a teaspoonful every hour, or in severe cases every half-hour, until the fever abates. If the inflammation is sthenic, I administer a mild cathartic to induce one or two evacuations from the bowels. As adjuvants to the above, I direct the frequent use of the sponge bath, the hot Mustard foot bath, and hot fomentations to the chest. Previously to the employment of the fomentations, I use the cups, wet or dry, if the case is severe. On the second day, I add Acetate of Potassa to the treatment, and at night administer a full dose of Opium or Morphia. In nine cases out of ten, the third day finds the patient almost free from fever, and ready for the employment of Quinia to the extent of ten grains daily. This would seem to be a very simple treatment, and at the same time promises more than can reasonably be expected; but if we examine the treatment, it is only simple by being explicit; the sedatives are powerful, and they are given in quantities sufficient to produce sedation in twenty-four hours, and almost always by the end of the third day; secretion is provided for by way of the skin, kidneys and bowels; sleep is induced, and the integrity of the nervous system restored by the employment of Quinia.

Indirect sedatives can be used in place of the direct, though their administration and action is not so pleasant. Thus, we may use the spirit vapor bath with the administration of a warm infusion of Eupatorium and Compound Tincture of Virginia Snakeroot, at the same time using the cups to the seat

of inflammation, and following with hot fomentations. Following the bath the patient should be placed in bed, and perspiration should be continued by warm applications to the surface, and the administration of nauseant diaphoretics and expectorants; the bowels might be freely moved, the diuretic Salts of Potassa administered, sleep induced, and when the secretions were established, Quinia would naturally follow. Or, we might substitute for the vapor bath an old-fashioned thorough emetic; or if hydropathically inclined, put the patient in the wet sheet.

There are some things in this treatment worthy of separate notice. First, the sedative acts better when employed in small and frequently repeated doses, and should be continued until convalescence is established; a great mistake, in my opinion, is committed by suspending it as soon as the pulse is reduced in frequency; for in a majority of cases if so suspended, the pulse will again become frequent. Second, I attribute much of the success to the use of the saline diuretic; in many cases, it seems to give prompt and effectual relief. Third, the full dose of Opium or Morphia as soon as excretion has commenced, is attended with the happiest results, and allays irritation, checks the cough, facilitates the action of the other remedies, and acts as a powerful restorative by giving temporary rest to the nervous system.

We not unfrequently meet with cases in which the irritation of the respiratory organs is so great, as to keep up a constant harassing cough to the great injury of the patient. In such case our remedies do not exercise their usual influence over the disease, until the irritation is subdued. To accomplish this, the nauseant expectorants heretofore named, may be employed in doses just sufficient to continue slight nausea; in addition to the means heretofore named, a moist atmosphere is of the utmost importance in these cases, and frequently it will be of advantage to let the patient inhale the vapor of water. Counter-irritation should be perseveringly employed. I employ cups and hot fomentations as heretofore named, but many prefer the blister.

In cases of *double* pneumonia, the emetic is, in my opinion, preferable to all other treatment at the commencement. I use the Compound Powder of Lobelia, or Acetous Emetic Tincture, given so as to produce nausea for an hour or so, and then carried to thorough emesis. The emetic should be followed by warm diaphoretic infusions, with a nauseant expect-

orant, aided by the hot foot bath, and hot fomentations to the chest. The emetic may be repeated in twenty-four hours, if thought necessary, but usually the treatment first named will be sufficient.

In typhoid pneumonia, where the loss of strength and congestion of the lungs are marked, the emetic will also be found to produce a favorable influence. It should, however, be speedy and thorough in its action, the nausea not being prolonged. Following it we adopt the treatment recommended in typhoid fever, with the additional measures for promoting expectoration, and relieving inflammation. Patients suffering from typhoid pneumonia usually bear stimulants well, and should have as much as the system will appropriate without increasing the action of the pulse; care must be used to avoid everything that tends to depress the powers of life.

The treatment of pleuro-pneumonia will not differ materially from that named for pleurisy, for the first day or two. If the pain is acute, the spirit vapor bath, with the stronger diaphoretics, cups to the thorax, followed by hot fomentations, is the appropriate treatment. After the first twenty-four hours, the treatment will be that proper for pneumonia uncomplicated.

CHRONIC PNEUMONIA.

Chronic inflammation of the lungs is not a common disease, and yet it occurs sufficiently often to make it an interesting subject of study. It is said to be the result of acute pneumonia by many authorities, and doubtless this is the case many times, but I have good reason to believe that in quite a number it results from a sub-acute inflammation that has not been sufficiently intense to prostrate the patient; it also results in some cases from organic lesion of the heart. When the result of acute pneumonia, it is observed that the patient does not fully recover from the acute attack, but is still troubled with symptoms indicative of imperfect respiratory action. In the second case, it comes on gradually, following a severe cold, the symptoms, both local and constitutional, becoming more and more marked as the structure of the lung becomes affected. In the third case, it usually comes on slowly from imperfect circulation of blood in the lungs.

SYMPTOMS.—Among the most prominent local symptoms are

cough, dyspnœa, or oppression of breath and quickness of respiration. The cough varies greatly, sometimes coming on at frequent intervals, deep, hard and harrassing, at others short and hacking, or deep and more or less hollow; occasionally the patient coughs more in the evening on going to bed and in the morning on arising, than at other times, as in phthisis. Usually there is more or less mucus expectoration, though sometimes the cough is constantly dry; occasionally the matter thrown off is purulent and in considerable quantities, from the breaking down of portions of the hepatized lung. The dyspnœa is proportionate to the extent of the inflammation, though always increased by exertion.

The general symptoms are those of depression; there is loss of strength and flesh; the appetite is impaired and digestion imperfect; the bowels at first constipated, at last become irregular; the skin is either dry and harsh, or soft, relaxed and flabby; in either case failing to perform its functions. If the disease is severe, the patient seems to have an intractable intermittent fever, the chill coming on in the afternoon or evening, followed by hectic fever, and it by exhausting night sweats. As the disease progresses, these symptoms become worse, the patient is reduced to a skeleton, he has just sufficient strength to walk around, finally becoming bed-fast, he soon sinks. A very marked resemblance to phthisis, both in the general and local symptoms will be noticed, so that it is very difficult, if not impossible in some cases, to determine the difficulty.

We rarely have an opportunity of making a physical examination in the early stage of the disease, the patient applying for assistance only when the disease has produced the severe general symptoms above named. At this time we will find marked dullness on percussion over the seat of the disease, which most generally is situate in the middle or inferior lobes of the lungs, and not at the apex as in phthisis. Auscultation gives us a marked mucus rhoncus and broncophony; occasionally a crepitant rhoncus is heard at the outside of the dullness, which would indicate a more acute case, and spread of the inflammation, unless the symptoms were abating, when it would be taken as a sign of resolution.

DIAGNOSIS.—We distinguish chronic inflammation of the lungs from phthisis, first, by the extensive dullness compared with the general symptoms; second, by its being situate in

the middle or inferior lobes, rather than in the apex of the lungs; and, third, by the absence of any hereditary tendency to consumption.

PROGNOSIS.—The prognosis will be favorable in probably one-half the cases. The previous good health of the patient, the absence of any hereditary tendency to disease of the lungs, and still sufficient strength to take exercise in the open air, may be considered favorable, whilst the reverse would be considered unfavorable.

POST-MORTEM EXAMINATION.—According to Copland “The gray induration constituting the more simple form of the disease varies in its aspect like acute hepatization, according to the tissues chiefly affected. It may thus assume a granular or oolitic aspect, owing to the thickening of individual vesicles. In some cases, it appears streaked and veined from the hypertrophy of the interlobular septa and cellular tissue around the vessels; in others it is more uniform and darker in color. In this variety, the cellular tissue between the lobules is sometimes thickened to the extent of several lines, and is of a light drab or gray color, like that of miliary granulations, and like those has almost the density of cartilage.”

TREATMENT.—A very careful examination of the patient, as regards the general symptoms, is necessary in order to obtain the best results from medicine. For instance, if the bowels are not irritable, we can put our patient upon small doses of Podophyllin, with one of the diuretic Salts of Potassa, in addition to the expectorants indicated by the symptoms, and in some cases we thus get a rapid removal of the effusion. Unfortunately we find this rarely to be the case, and we have to resort to other means.

Tonic expectorants, combined with alteratives, answer a good purpose, as, R, Tincture of Ptelea, Tincture of Achillea, Tincture of Collinsonia, āā, ʒj; Syrup of Senega, ʒii; M., and give in teaspoonful doses every three or four hours. An infusion of *Alnus Senulata* and *Trillium*, sweetened with Honey, and if desired acidulated with Lemon juice, answers a good purpose to check the cough and increase the secretions.

Lobelia and *Sanguinaria* answer a good purpose as expectorants in some cases, but usually they can not be employed on account of the derangement of the stomach they produce. In cases, therefore, where the action of a nauseant is desired, it is better to use them once or twice, or three times a week to

produce free emesis. When the patient can bear the action, there is no means so certain or speedy.

The diuretic salts have been named as appropriate in this affection, but often they can not be used on account of disturbing the bowels. Hence, the Chlorate of Potassa, or the Iodide of Potassium, with occasionally a mild vegetable diuretic, will be found of advantage. I have sometimes used, in these cases the Iodine pills made as follows: \mathcal{R} , Extract Nux Vomica, Iodine, ãã , gr. v; Hydrastine, 3ss ; Extract of Taraxicum, 3s ; make 30 pills; one to be taken three times a day.

Counter-irritation proves very effective in this disease. If the patient is of a robust habit, I direct alternate wet and dry cups two or three times a week, followed by the cold Vinegar bandage. In other cases, the irritating plaster proves most efficient; if the patient is feeble, it should be used just sufficiently to produce a crop of small pustules, then removed and re-applied when the irritation has disappeared; in other cases it may be used to produce free suppuration. The use of stimulant and other baths is of the highest importance, for if the skin fails to act the entire treatment will fail; much attention must likewise be paid to getting an equal circulation in all parts of the system, and for this purpose if there is coldness of the extremities, the Tincture of Capsicum lotion heretofore named, should be employed.

Good digestion and highly nutritious diet are very important elements of success, as experience proves that a diseased structure acquires its original condition in proportion as the blood is rich in the elements for nutrition. Hence, in all of these cases a small portion of some judiciously selected tonic should form a part of each day's treatment.

ASTHMA.

The name of this disease indicates accurately its character: "I breathe with difficulty;" and anything else may be considered a complication, as are organic lesions of the respiratory apparatus. Copland's definition, "Great difficulty of breathing, recurring in paroxysms, accompanied with a wheezing sound, sense of constriction in the thorax, anxiety and a difficult cough, terminating in mucus expectoration," is a very complete description.

PATHOLOGY.—It is now generally admitted that asthma is purely a nervous affection, the irritation being expended in a series of muscular fibers that connect the extremities of the cartilages of the bronchial tubes, forming about one-third of the diameter of the air-passage. Any cause that will irritate the nerves distributed to this muscular structure, causing more or less permanent contraction, produces asthma.

As regards the cause of the disease, there is a diversity of opinion, some attributing it to irritation of the bronchial mucous membrane, others to disease of the cerebro-spinal nervous centers, others again to a lesion of the blood, and others to organic disease of the heart. Probably all are correct, as we observe that irritation of the mucous membrane from cold is frequently the exciting cause; that the disease is induced by excessive emotional excitement, and sometimes comes on during disease of the nervous centers; that in chronic cases, remedies directed to the blood, are about the only ones that are permanently beneficial; and that in some forms of heart disease, asthma appears as a symptom.

Dr. Todd concludes: "That asthma is primarily humoral; that it is caused by a poison or morbid matter acting on that portion of the nervous system which ministers to the function of respiration; that it leads to dilatation of the lungs and walls of the chest, to emphysema, and ultimately to dilatation of the heart; that the habit may pass off, the morbid matter being no longer created, the patient ceasing to be asthmatic just as a person ceases to be gouty or epileptic; and that, ceasing to be asthmatic, the patient may remain, or may not remain, emphysematous, according to the severity and duration of his previous attacks.

SYMPTOMS.—The symptoms of asthma are so marked that an extended description is unnecessary. In some cases the attack is preceded for a day or more by a loaded tongue, some pain and weight in the head, and a feeling of languor, but in others there are no premonitory symptoms. The disease is sudden in its onset, the patient being aroused at night by a feeling of impending suffocation or forced to throw open the windows and doors in order to get breath. Usually it comes on gradually, attaining its greatest violence in two, three or four days, and as gradually disappearing. We find a patient suffering from an attack of asthma with the head and shoulders raised and thrown forward, the breathing remarkably difficult,

wheezy, laborious and prolonged, and anxiety and evidence of imperfect aeration of the blood, proportioned to the severity of the disease.

Sometimes there is markedly increased secretion, the air-passages seeming to be loaded with mucus, at others the respiration is shrill and whistling. Cough is present in nearly all cases, sometimes very severe, and prolonged, giving rise to very great difficulty of breathing, and aggravating the patient's suffering, at others short, and occurring at unfrequent intervals.

The duration of the paroxysms is very variable, sometimes but a few hours, at others, days or even weeks. Their recurrence, too, varies greatly even in the same cases; in some the patient is hardly free from the disease from autumn until summer. Rare cases are met with in which the one attack having been arrested, the patient is not predisposed to its recurrence, but in a large majority the disease becomes constitutional, and an attack of asthma is the result of any indiscretion, or sudden change of weather.

DIAGNOSIS.—The difficult breathing, with absence of febrile symptoms, is sufficient to determine the character of the affection, if not, the previous character of the patient will make the case plain.

PROGNOSIS.—Though not classed among those diseases likely to prove fatal, it occasionally terminates the life of the patient speedily. In these cases, there is usually some organic affection of the heart. It is a very difficult disease to cure radically, and possibly in one-half the cases we meet, if confirmed, the treatment will be merely palliative.

TREATMENT.—The treatment of asthma may appropriately be divided into palliative and permanent, the first having reference to mitigating or arresting the paroxysm, the second to the removal of the cause.

Palliative Treatment.—Lobelia is considered by all schools as standing at the head of remedies of this class, and is frequently useful. It may be employed in the form of the Tincture, in doses of half a teaspoonful to one teaspoonful every one or two hours, until nausea is induced; or better, make an infusion of the Emetic Powder, and administer to induce free emesis, afterwards in smaller doses to keep up the effect. I have employed the Comp. Powder of Ipecacuanha and Opium in doses of five grains, and Opium with Powdered Lobelia-seed, are given with advantage. The herb smoked in a common

tobacco-pipe, with an equal quantity of Stramonium leaves, is highly recommended, as is also the inhalation of the vapor of an infusion of both.

Carbonate of Ammonia added to the preceding prescriptions has been recommended, as has the Hydrochlorate; and an inhalation of Aqua Ammonia. The Nitrate of Potash is one of the best remedies I have seen used: make a saturated solution in boiling water, and saturate common brown paper, let it dry, and burn it in the patient's room, allowing him to inhale the smoke. Another form is to take pasteboard broken down in hot water, ℥iv; Nitrate of Potash, ℥ij; Belladonna, Stramonium, Digitalis, Lobelia Inflata, āā in powder, gr. xx; Myrrh and Olibanum, āā, ℥ijss; incorporate all these and dry thoroughly, when it may be burnt in the patient's room as the preceding; or it is formed into cigarets by saturating the leaves of Stramonium and Belladonna and with Nitrate of Potash.

Chloroform has been employed to mitigate the paroxysms, which it does in many cases very speedily; twenty to thirty drops are inhaled from a handkerchief, and repeated cautiously. M. Guérard dipped a small piece of charpie into pure Liquor Ammonia, and then instantaneously into water, and passed into the back of the throat, touching rapidly the pillars of the fauces, soft palate and pharynx. He treated over one hundred in this way, and seldom had to repeat the operation.

Dr. L. C. Dolley, in an article on asthma, speaks of using a Syrup of Lobelia, Sanguinaria and Ictodes Fœtidus, with advantage.

Treatment for a Radical Cure.—Many plans of treatment have been recommended for the permanent cure of this disease, as well as specific remedies for this purpose, but as yet without flattering success. I have used as special agents for this purpose, Essl. Tincture of Achillea, Ptelea, Euonymus and Collinsonia, āā, in doses of a teaspoonful four times daily with marked advantage in some cases, but without any in others. The Tincture of the Rosin Root, a variety of the Silphium, growing in Illinois, has, so far as we have tried it, answered a good purpose, and needs further investigation.

Considering the disease as one of the blood, a course of treatment adapted to free it from its impurities by elimination has been adopted with success. Thus, the old formula, “℞, Sulphr. Præcip., ℥ss; Semin. Anisi. Contus, ℥ijss; Confect.

Sennæ et Syr. Tolut, āā, 3vj; M." in dose of one or two teaspoonfuls, was very efficient in some cases; or, as prescribed by Dr. Dolley, R, Sulphur ʒjss; Anise Seed, Pulv. ʒss; Senna and Cream of Tartar, Pulv. āā, ʒj; M.; in doses of a teaspoonful in Syrup taken at night, or in severe cases, two or three times a day. Dr. D. remarks, that "An experience of fifteen years has demonstrated to his mind conclusively the virtues of Sulphur." He also recommends: R, Tincture Phytolacea, ʒiij; Iodide of Potassa, ʒi; Simple Syrup, ʒj; in doses of a teaspoonful three times a day.

Especial attention should be paid to the general health of the patient; I have known cases where even temporary alleviation could not be obtained, owing to irritation of the stomach, and one case radically cured simply by getting the alimentary canal in normal condition, there having been confirmed dyspepsia and obstinate constipation. In another case, the disease was materially benefited by the treatment of an herpetic disease of the skin, previous to which the surface had been rough and harsh and the secretion deficient.

Bathing is an important element of the treatment, and none will prove successful without it. A remarkable liability to catch cold is a peculiarity of asthmatics, and this cold proves the exciting cause of the disease; remove the tendency, and the paroxysms become less. The only prophylactic that I have found, is bathing with cold water; let the patient commence with tepid water first, used once a day, and use it cooler and cooler, until finally cold water can be employed without danger. The addition of salt to the water is advantageous in many cases; and when the disease is severe and the patient debilitated, a lotion of Hydrochlorate of Ammonia, ʒj; Water, Oj; applied to the thorax is advantageous.

EMPHYSEMA.

Emphysema is the infiltration of air into a part not natural to it; or the undue distension of the parenchyma of the lungs with air, caused by the rupture of the air-cells. It arises from two causes: first, as the result of injury, a communication being established between the respiratory apparatus and the emphysematous part; and second, by forcible action of the lungs, whereby the tissue is ruptured, as in asthma, some cases of bronchitis, etc.

In the first case, the emphysema is usually of the thoracic parieties, the cellular tissue being sometimes remarkably distended. It is readily determined by the crepitation on percussion, but it is not so easy sometimes to determine its cause.

In the second case we find an unnatural resonance on percussion, and, judging from the physical signs, should expect free respiration. But, on the contrary, it is more or less difficult, with evidence of imperfect aeration of the blood. The accompanying disease gives additional evidence of the difficulty.

TREATMENT.—The treatment of external emphysema will have to be adapted to each individual case. If from a wound, as soon as the communication between the lungs and the cellular tissue is cut off the further extension of the emphysema will stop: when necessary, owing to extreme distension, free incisions have been recommended to remove the air. In internal emphysema, a tonic and supporting treatment must be adopted; and if the cause is still in operation, it must be removed if possible.

PHTHISIS PULMONALIS.

(CONSUMPTION.)

This most insidious and intractable of all diseases of the respiratory apparatus is of very frequent occurrence, and year by year the predisposition to it seems to increase. It demands careful study, as it is only in its earlier stages that curative treatment is of any avail; at a later period all we can do is to palliate the symptoms as they arise, and smooth the sufferer's pathway to the grave.

PATHOLOGY.—The impression that phthisis is a disease of the lungs exclusively, is rapidly giving way; and most authorities now recognize a preëxistent disease of the blood. It is true that we are not able to analyze the vital fluid, and determine the changes that give rise to the exudation of tubercle, but sufficient evidence exists in the symptoms and character of the deposit to warrant the opinion. We hold that previous to the commencement of the tuberculous deposit, there has been deficient elaboration of the blood, and that, in consequence of this, there exists in the blood a material of low organization, not readily removed by the excretory organs, but which may be deposited in any organ or tissue to which

a determination of blood is set up. Tuberculosis, it will be recollected, is not confined to the lungs, but may affect any part of the system, the determining cause being, as above named, an irritation causing determination of blood.

The evidence of these views is found, first, in the fact that phthisis occurs in families of feeble vitality, and that it is hereditary simply because parents of feeble vitality can not produce healthy offspring, the children inheriting the imperfections of the parents. In such families, we notice the evidence of this, from childhood up to adult age, especially in the diseases of childhood of which so many die. Second, preceding the development of phthisis, we observe a marked depression of vitality manifested by a feeble performance of all the functions of the body, and more or less defect of tonicity. Lastly, the only treatment that offers a probability of success is that that improves digestion, the elaboration of the blood, nutrition, and excretion; it is only by raising the vitality above the point of tuberculosis that we are able to ward it off or arrest it.

It is not known whether the tuberculous matter is directly the result of imperfect digestion and assimilation, the material thrown out having served no purpose in the body, or whether, as some suggest, it is the detritus of the tissues, and dependent for its character on an imperfection of nutrition and excretion. I am inclined to believe that it has its origin from both, there being only this difference: that in the one case the material has never been used, in the other, that though used, its imperfections were such that it had to be speedily removed.

SYMPTOMS.—In the early stage of the disease we notice that the person is in feeble health; there may be no marked lesion, no special derangement of any function, but a condition very accurately described in the popular phrase—"going into a decline." Possibly, at this time the patient has a slight cough—more rarely a severe one—occurring principally in the evening and morning, occasional lancinating pains in the upper part of the thorax, and languor and loss of strength, occasion some alarm. The patients' strength having failed, so as to unfit them for their usual employment, they consult a physician, not for disease of the lungs, which they can with difficulty believe, but for the debility and minor derangement

of some function they have noticed, the cough and pain being considered of minor importance.

If we closely examine the patient now, we will find the evidences of failure of vital power in every symptom. The circulation is feeble, the skin, kidneys and bowels do not perform their functions properly, the appetite is variable, but gradually failing, they remark that their food does not seem to strengthen them as usual, and nutrition is feeble, as evidenced by the soft and flabby muscles. The positive signs of phthisis are not yet so fully developed as to be evident to the casual observer; yet, the persistent cough, recurring night and morning, the neuralgic pain in the apex of the thorax, slight hemorrhage in some cases, with many times a well marked red line at the border of the gums (gingival margin), is sufficient evidence. If we can carefully examine the lungs, we will find slight dullness on percussion over the apex of the lung diseased, or if the tubercle is deposited in mass near the anterior surface the dullness will be marked. Auscultation gives us a roughening of the respiratory murmur, with more or less mucous rattle if secretion has been established from the bronchial mucous membrane.

As the disease progresses there is further loss of strength, and failure of the functions of digestion and assimilation.

The cough is more harassing, the pains in the chest more marked and persistent, hemorrhage occurs in about two-thirds of the cases, and slight difficulty in respiration is noticed. Now commences the breaking down of a portion of the deposit; the cough is worse; hectic fever appears in the afternoon; night sweats at night; the appetite is poor, and the bowels irregular. The expectoration, which varies greatly in different cases, sometimes profuse, at others scanty, but previous to this consisting of a yellowish or whitish mucus of considerable consistence, now becomes cheesy or semi-purulent, with sometimes small masses of tubercle in the sputa. This paroxysm, if we may so call it, lasts from a few days to sometimes three or four weeks, when the worst symptoms gradually give way, and the patient ceasing to suffer and regaining some strength flatters himself that he is getting well. The tubercle is still being deposited, and the amelioration but temporary, for in a short time the same symptoms return with increased intensity, the patient becoming more and more feeble as the disease advances.

Finally, the system fails to react and the deposit of imper-

fectly organized tubercle is very rapid, and its breaking down, and destruction of the tissues of the lung correspond, and in a short time the patient's strength is exhausted.

DIAGNOSIS.—I can not do better than to give the practical and clear analysis of the symptoms of this affection by Dr. Walshe. "A young adult who has an obstinate cough, which commenced without coryza, and without any obvious cause, a cough at first dry, and subsequently attended for a time with watery or mucilaginous-looking expectoration, and who has wandering pains about the chest, and loses flesh, even slightly, is, in all probability, phthisical. If there be hemoptysis, to the amount of a drachm even, the diagnosis becomes, if the patient be a male, and positively free from aneurism or mitral disease, almost positive. If in addition, there be slight dullness under percussion at one apex, with jerking, or divided and harsh respiration, while the resonance of the sternal notch is natural, the diagnosis of the first stage of phthisis becomes next to absolutely certain. But not absolutely certain; for I have known every one of the above conditions exist (except hemoptysis, the deficiency of which was purely accidental) when one apex was infiltrated with encephaloid cancer, and no cancer had been discovered elsewhere to suggest to the physician its presence in the lung. If there be cough such as described, and permanent weakness and hoarseness of the voice, the chances are very strong (provided he be non-syphilitic) that the patient is phthisical. If decidedly harsh respiration exists at the left apex, or at the right apex behind; if the rhythm of the act be what I have called cogged-wheel, and there be dullness, so slight, even, as to require the dynamic test for its discovery, there can be little doubt of the existence of phthisis. If, with the same combination of circumstances, deep inspiration evokes a few clicks of dry crackling rhoncus, the diagnosis of phthisis, as far as I have observed, is absolutely certain. If these clicks, on subsequent examination, grow more liquid, the transition from the first to the second stage may be positively announced. If there be slight flattening under one clavicle, with deficiency of expansive movement, harsh respiration, and slight dullness under percussion, without the local or general symptoms of phthisis, the first stage of tuberculization can not be diagnosed with any surety, unless there be incipient signs at the left apex also; the conditions in question, limited to one side, might depend on chronic pneumonia

or on thick induration matter in the pleura. The existence of limited though marked dullness under one clavicle, with bronchial respiration and pectoriloquy, so powerful as to be painful to the ear, the other apex giving natural results, will not justify the diagnosis of phthisis. I have known this combination when the apex of the lung was of model health, and a fibrous mass, the size of a walnut, lay between the two laminae of the pleura. I would even go further, and say, that the combination in question is rather hostile than otherwise to the admission of phthisis, as, had tuberculous excavation formed at one side, the other lung would, in finite probability, have been affected in an earlier stage. Pneumonia limited to the supra and infra-clavicular region on one side, and not extending backward, is commonly but not always tubercular. Subcrepitant rhoncus, limited to one base posteriorly, is not, as has been said, peculiar to tubercle; it may exist in emphysema, and in mitral disease. Chronic peritonitis, in a person aged more than fifteen years, provided cancer can be excluded, involves as a necessity tubercles in the lungs. To this law of Louis, it is necessary to add the qualification: provided Bright's disease be also absent. Pleurisy with effusion, which runs a chronic course in spite of ordinary treatment, is in the majority of cases tuberculous or cancerous; the character of the symptoms previous to the pleurisy, will generally decide between the two. Double pleurisy, with effusion, is not, as has been said, significant of tubercle; for it may depend on Bright's disease. If the latter disease can be excluded, carcinoma and pyohæmia remain as other possible causes. If a young adult free from secondary syphilis and spermatorrhœa, and not dissolute in his habits, speedily lose flesh without clear cause, he is, in all probability phthisical, even though no subjective chest symptoms exist. But he is not by any means certainly so, for he may have latent cancer in some important organ, or he may have chronic pneumonia. Nay, he may steadily lose weight, have dry cough, occasional diarrhœa, and night sweats, and present dullness under percussion, and bronchial respiration under both clavicles, and yet be non-phthisical. I have known all this occur in cases, both when the lungs were infiltrated superiorly with primary encephaloid cancer, and when they contained secondary nodules of the same kind. Failure of weight becomes less valuable as a sign of phthisis, the longer the thirtieth year has been passed. The discovery of

cardiac disease with marked symptoms, deposes against, but does not exclude the existence of active tuberculization. The existence of cancer in any organ is unfavorable to the presence of tuberculous disease, but tubercles and cancer may coëxist in the same lungs."

PROGNOSIS.—In the early stage of phthisis, if not hereditary, but the result of active causes, the prognosis should be favorable; but when hereditary, or advanced to the stage of breaking down, it is unfavorable.

POST-MORTEM EXAMINATION.—On opening the thorax, the lungs do not generally collapse as they do when not diseased; they are increased in weight, and the diseased parts sink in water. On making an incision through the part affected, we find tuberculous masses, from the size of a hemp seed to that of a pigeon's egg, the larger ones being accumulations of the smaller. These differ in condition: some are solid, others softened to a greater or less extent, and others broken down, forming a pultaceous mass. We will also observe *vomicæ*, more or less numerous, left by the discharge of the tuberculous material. In some cases they are partially cicatrized; in others, free of tubercle, but ragged; and in others, again, containing a disgusting mass of broken-down tubercle and structure of the lung. In some cases we find no trace of organization left in the part diseased, the entire tuberculous mass, with the lung, seeming to have given way at once, and an offensive semi-purulent material is all that is left.

Tubercle consists of albumen, with some gelatine and fatty matter. The division into gray and yellow is but indicative of their degree of resistance to change, as all tubercle becomes yellow and opaque before disintegration. If examined with the microscope, they are found to consist of minute and irregular grauuules, with but slight trace of cells and fibres, showing their low organization.

TREATMENT.—As before remarked, if we expect to cure consumption, we must do it in the first stage of the disease—I say if we cure—when, properly speaking, it should be if nature eures, the physician simply removing obstacles. The objects to be accomplished are plain: we must increase the patient's vitality above the point of tuberculosis, and to do this, must get a normal action of all important organs, and consequently a healthy pabulum for nutrition. Usually the treatment is quite simple—a judicious bitter tonic with Iron,

some of the means named hereafter to arrest the irritation of the lungs and cough, attention to the secretions, especially to the use of baths, stimulant or otherwise, to get a normal action from the skin, a highly nutritious diet, a cheerful mind, and exercise in the open air, the more the better, so it is not carried to exhaustion. I have started a patient to the Upper Mississippi with a small bottle of the Compound Tincture of Oil of *Stillingia* for the relief of cough, and seen him come back in perfect health; and have in other cases no worse, used everything that has been recommended and failed, because the patient had not energy enough to get well. Place the patient in the best possible condition for regaining his general health, and if normal digestion, assimilation and secretion is the result, he will get well; if not he will die.

For the *cough* a great variety of means are used, some with well-defined indications, others empirically. The object is to quiet irritation, sometimes of the bronchial mucous membrane, at others of the pneumo-gastric nerve or its origin.

the cough is dry and harsh it is usually supposed that nauseant expectorants, as the *Lobelia*, *Sanguinaria*, *Ipecac*, etc., are indicated; and though this is often the case, it is not always the best plan of treatment. If administered they should be given in their least objectionable form, and at frequent intervals, until the desired object is attained. A much easier plan, if obtainable, is to give the patient a warm bath, at about 100 degrees, and, at the same time, allow him to inhale the vapor of warm water; thorough rubbing with a flesh brush or towel should follow, and perfect rest for some hours enjoined. One day with such treatment will accomplish more than a month with nauseant expectorants.

Sometimes it seems that the cough is rendered worse by too free secretion, which has thus to be removed. In this case stimulant expectorants, as the gum-resins, *Senega*, *Squills*, etc., are administered, with the expectation of lessening the cough as the secretion is diminished. It would not be profitable to repeat the many formulæ that have been employed, as the remedies are all in common use, and every Dispensatory or *Materia Medica* will give their combinations.

If the remedy for the cough can be so arranged as to answer the purpose of a tonic and stimulant it should be done, as *R*, *Essl. Tinct. Collinsonia*, *Essl. Tinct. Achillea*, *Essl. Tinct. Verbascum*, *āā*, *3ss*; *Simple Syrup*, *3jss*; or, as an alterative and

tonic, \mathcal{R} , Essl. Tinct. Euonymus, Essl. Tinct. Trillium, Syrup of Lobelia, \mathfrak{aa} , $3j$; the dose of each being a teaspoonful every three or four hours.

Remedies in small doses, to act principally upon the mucous membrane of the fauces and pharynx, answer a good purpose in many cases where the stomach will not tolerate cough medicines without so deranging it as to destroy the appetite. Amongst the most valuable of this class is the Compound Tincture of Oil of Stillingia, in drop doses on sugar, slowly swallowed; or, a preparation of \mathcal{R} , Morphia Sulph., grs. ij ; Gum Arabic, $3j$; triturate thoroughly, and divide into twenty powders; one to be taken without water as often as necessary; any narcotic may be used in the same manner.

All of the narcotics, Opium and its preparations, Conium, Belladonna, Hyoseyamus, Hydrocyanic Acid, etc., are employed in the latter stages of the disease to check cough. I have also used with advantage the Extract of Cannabis Indica and Pyroxilic Spirit, as follows, \mathcal{R} , Spiritus Pyroxilicus, $3ij$; Ext. Cannabis, $3j$; Mel, $3ij$; Aqua, $3vj$; M.; the dose being a teaspoonful every two or three hours.

Inhalations may be employed as named under the head of chronic bronchitis and laryngitis, and are often more serviceable than medicines taken by mouth.

Hectic fever and *night sweats* may be controlled by the administration of Tincture of Euonymus and Quinia, in the early stage of these symptoms. At a later period, we employ for the night sweats, Gallic Acid in Essence of Cinnamon, Tannic Acid and Nutmeg, or the Aromatic Sulphuric Acid, in doses of from twenty to thirty drops, or equal parts of Nitric and Muriatic Acids in doses of ten drops, largely diluted with Water. The diaphoretic plan has answered a good purpose in some cases, as an infusion of Orobanché or Beech Drops, or the inner bark of the Platanus or Sycamore. The most efficient agent I have ever employed is the Oxide of Zinc, in doses of one grain, three or four times a day.

The *diarrhœa* may be controlled at first by the usual remedies employed for that purpose. My favorites are the Sub Nitrate of Bismuth in doses of five grains in Peppermint water and the Epilobium in infusion. I have used the Aromatic Tincture of Guaiacum with Tannic Acid with advantage, but prefer the means first named.

HEMOPTYSIS.

Hemorrhage from the lungs is a very rare disease, except as the result of tubercular deposit; and though frequently made light of, I know of no symptom so certain. It is not, as popularly supposed, caused by the rupture of a blood vessel, or as some in the profession think, by their erosion during the breaking down of tubercle, for blood-vessels are not easily ruptured, and they yield to the ulcerative process so slowly that obliteration of their cavity takes place some time previously. Hemorrhage is, in a large majority of cases, an exudation from the blood vessels, and its probable cause is, compression of the veins by the tuberculous deposit, thus preventing the free return of blood to the heart. We have a similar instance in hemoptysis from disease of the heart, the free passage of blood from the lungs through the left auricle and ventricle being obstructed.

SYMPTOMS.—Evidences of debility and frequently of disease of the lungs precede hemoptysis. There may be no seeming cause for it in some cases, coming on when the patient is sitting or lying still, or sometimes when asleep; but usually it is after exertion, or a fit of coughing. Varying in quantity, we find it sometimes raised by an act of coughing, at others it seems to flow to the upper part of the larynx, and into the pharynx, and is simply spit out. The blood is florid and somewhat frothy, differing materially from that in hemorrhage from the posterior nares and stomach. A small quantity of blood mixed with the secretions from the mouth and throat makes a very large show, especially when spit on cloths, or into a vessel of water, so that frequently there is not the cause for alarm that there might seem at first sight.

Sometimes the hemorrhage is preceded with chilly sensations, and a feeling of faintness, with occasionally a sense of oppression in the chest, and some dyspnœa. With its commencement the patient usually becomes much alarmed, which is increased by the excitement of those about, and this is usually the cause of the excessive prostration noticed. In but few cases is the hemorrhage in such quantity as to destroy the patient. Dr. Heberden states that in sixty years' practice he had never lost a patient of it, and others testify to the same. The quantity of blood lost varies from a few drops to as much as ten pounds, the average quantity, possibly, being from one to ten ounces. When very free, it occasions much dyspnœa,

and requires continuous efforts to free the upper air passages from it.

DIAGNOSIS.—Hemorrhage from the lungs is diagnosed by the bright florid character of the blood, its being frothy, and raised by an act of coughing or expuition. In some cases it is swallowed, or simply runs down the œsophagus, and coagulating in the stomach is removed by vomiting; here we have to be guided by the symptoms, the oppression of the chest, cough, dyspnœa and earlier appearance of the blood will determine its source. Bleeding from the posterior nares is more frequently mistaken for hemoptysis, but here the darker color of the blood, absence of air in it, the feeling of warmth posterior to the palate, and to its being removed by hawking, is sufficient for the diagnosis.

PROGNOSIS.—The prognosis is favorable as far as the hemorrhage is concerned, but unfavorable as regards permanent recovery. The greater the hemorrhage the more speedy the danger, usually, as we frequently see phthisis manifest itself with great rapidity after an attack of this kind. The prognosis is unfavorable when the hemorrhage is the result of heart disease, and it is only in those rare cases where it results from temporary congestion of the lungs, that we can assure the patient there will be no danger.

TREATMENT.—The patient should be immediately placed in the recumbent position, with the head elevated, and all physical and mental excitement avoided. But few persons should be in the room, which should be well ventilated and cool. If the feet are cold, a hot Mustard foot bath is very useful, and the warmth subsequently continued with a jug of hot water.

If no other remedy is at hand, a half teaspoonful of common Salt may be given every half hour, and if palatable a small portion of grated Nutmeg added to each dose.

If the practitioner called hastily, has *Veratrum* with him, it and the Salt will be found very efficient, it may be administered in doses of from one to three drops every half hour, until its effects are perceptible. Gallic Acid, in from two to five-grain doses, is one of the best remedies in this case, and may be given as often as it seems necessary. The *Lycopus Virginicus* has proven very successful, and may be depended on; it is administered in infusion, 3j, to 3vj, of boiling water; half an ounce of the infusion every half hour. *Ipecacuanha* has been highly recommended, and I am satisfied it exerts a marked

influence; it may be given in doses of from three to five grains every fifteen or thirty minutes, until nausea is induced.

Sulphate of Magnesia in half drachm doses, with diluted Sulphuric Acid, has been used with advantage, as has also Alum, in doses of from two to five grains with Gum Tragacanth, every half hour. If hemorrhage is feared, Oil of Turpentine may be used in doses of from twenty to sixty minims, every three or four hours. The Oil of Erigeron in doses of ten or fifteen drops, is relied on by many, and I have no doubt will answer the purpose in many cases. The Tincture of Veratrum has been named as an excellent remedy in this case, and I have employed it in place of the older agent Digitalis. There are practitioners that give no other remedy, the treatment being, warmth to the feet, the recumbent position, perfect quiet, and Digitalis in doses of one or two grains every hour or two, until the desired effect is induced. If the hemorrhage is profuse, and the remedies named do not act speedily enough, apply ligatures to the lower extremities, and continue them almost to syncope; this will arrest the flow of blood and give time for other medicines.

The patient should be kept quiet for some time after the hemorrhage has ceased, and treatment adopted to counteract the ill effects of the loss of blood. The judicious administration of tonics, stimulants, and Iron are advantageous, as is also fresh air, exercise, change of scene, a nutritious diet, etc. As the patient is in constant dread of another attack, he should be furnished with the necessary remedies to check it, which gives him confidence. Instead, however, of using the stronger medicines named, continually, it is better to put the patient on the use of an infusion of Lycopus, or Tincture of Achillea, or Trillium. The Myricin, in connection with Hydrastine, in doses of one grain three times a day, is sometimes useful. One of the principal objects in the treatment is to prevent undue determination of blood to the lungs, by keeping free circulation to the skin and extremities; if this is attended to, there is but little danger of hemorrhage.

PLEURITIS.

The serous membrane enveloping the lungs, is not unfrequently the seat of inflammation, which when occurring without disease of the lungs, is called pleurisy. A milder form

occurs with pneumonia, and is termed pleuro-pneumonia, this has already been spoken of.

It will be recollected that there are two distinct pleural membranes, one for each side of the thorax, and that each of these consists of two parts, one investing the thoracic wall, pleura-costalis, the other enveloping the lung, pleura-pulmonalis. Hence we usually find the disease confined to one side, and not unfrequently to either the pleura-costalis or pulmonalis. Like all other inflammations, effusion occurs after a variable length of time, but as the structure is so delicate it is thrown off from the free surface, instead of being deposited in its tissue.

The inflammation having subsided, the effusion is absorbed, or in some cases becomes organized as a false membrane or adhesions.

SYMPTOMS.—Sometimes pleurisy is preceded for a short time by languor, headache, loss of appetite and derangement of the secretions, but usually there are no evidences of disease until the commencement of the chill or pain. A marked chill usually ushers in the disease, sometimes it is preceded by pain, at others, it is not; fever follows and is generally high. The pain is sharp and lancinating, increased when the thorax is moved, much easier when kept perfectly quiet. In consequence of this pain, we find the respiration short and hurried, and principally abdominal, as anything like a full inspiration produces excruciating suffering. A dry hacking cough attends the disease, and is a source of great annoyance to the patient. Pleurisy is characterized by a hard, small, frequent pulse, running sometimes to from 120 to 140 beats per minute; the skin is dry and harsh, the urine scanty, tongue coated white, and bowels constipated.

These symptoms continue without change for from one to three days, unless arrested by treatment, when effusion taking place the pain is lessened, but the difficulty of breathing and other symptoms are increased. The fever now is markedly lessened, the pulse is still frequent, but has lost its hardness, the trunk is hot, but there is tendency to coolness of the extremities, the secretions are yet checked, there is still cough, and sometimes expectoration, the patient feeling very much prostrated, especially after a paroxysm of coughing. The difficulty of breathing is sometimes so great that the

patient can not lie down; in such cases there is abundant effusion.

The disease may terminate fatally in the first or second stage. If in the first, the fever is very high, and the pain excruciating; the pulse is wiry and quick; respiration rapid, sometimes fifty per minute; delirium ensues, and the patient succumbs, usually within forty-eight hours. After effusion we find the patient losing strength, day by day, a low form of remittent fever is present, respiration is difficult, the patient has no appetite, and is generally worn out.

The physical signs noticed are a sound of friction heard during the first stage; it is not constant, and has not been explained. Dullness on percussion over the most dependent portion of the affected side is present when effusion has taken place. If the effusion is of coagulable lymph, the dullness may extend over the entire seat of the inflammation. Diminished respiratory sound, with less motion of the thorax, is observed, and is in proportion to the amount of the effusion. If the ear is applied over the effusion, while the patient is speaking, the sound will seem tremulous, and is termed *ægophony*. If the effusion is serous, and to considerable extent, it will be noticed that the intercostal spaces are distended to a level, and in some rare cases, distinct succussion can be obtained by palpation.

DIAGNOSIS.—The sharp, lancinating pain, with difficult respiration and cough and febrile action, is sufficient to determine the nature of the disease. The moderation of the pain, oppression of breathing, dullness on percussion, diminished respiratory movement, and *ægophony*, determines that effusion has taken place.

PROGNOSIS.—In the early part of the disease we can safely promise a favorable result in most cases; but where effusion has taken place, though the danger to life may not be increased, yet recovery will be retarded, and in some cases difficult.

POST-MORTEM EXAMINATION.—In the early stage of the disease we observe a congested state of the capillaries, and larger or smaller red patches, which sometimes become dark, and look like ecchymoses; still further, the pleura loses its smoothness, and becomes dull and opaque, the redness is more uniform, and small points or patches of a yellowish color make their appearance. Consequent upon these changes, we next

notice the effusion, which, sometimes serous with some flocculi, is at others composed in considerable part of coagulable lymph, more or less organized and attached to the inflamed surface. If the disease has progressed for some time, we notice this lymph assuming various forms, sometimes as long, bridle-like adhesions, at others, close, like short areolar tissue, and again forming a false membrane, the surface being still free, or uniting them together so closely that it is difficult to separate them with the scalpel.

TREATMENT.—The objects of treatment are to lessen the rapidity and equalize the circulation, and by different means of derivation check the flow of blood to the pleura. We can accomplish this in different ways: thus, one will have an infusion of the Compound Powder of Lobelia made, and give it freely until nausea is induced, and after this has relaxed the system and mitigated the pain, give it to produce thorough emesis. It would seem at first sight as if the patient could not bear the severe movement of the chest necessary in vomiting, when the hacking cough produces so much disturbance, but we find the nausea to so check the pain that the vomiting does not occasion additional suffering. Others again would arrive at the same result by inducing profuse diaphoresis with the spirit vapor bath, and the free administration of an active diaphoretic, as the Compound Tincture of Virginia Snake-root.

It will be noticed that these means are powerfully relaxant, indirectly sedative, and thoroughly revulsive, and will sometimes check the disease at once. I have seen it treated by Podophyllin, in doses of from half to one grain every three hours until emeto-catharsis was induced, and am satisfied, in my own person, that it is very effective, though extremely unpleasant.

A much more pleasant treatment is to give the patient Tincture of Veratrum in doses of from three to five drops every hour until partial sedation is induced, and then add the Tincture of Asclepias in half drachm doses. It is well to get an action on the bowels with the Podophyllin pill heretofore named, and in some cases add sufficient Opium to mitigate the distress. Cups to the affected part, followed by hot fomentations, or a warm poultice of Wheat-bran, assists very materially. A sinapism, followed by hot Hop or Stramonium

fomentations, may be used instead. Or the cold water bandage recommended by some may occasionally be found useful.

After the effusion has taken place, I put the patient upon the use of Quinia and other bitter tonics, keep the bowels open, and use *Asclepias* as a diaphoretic. An alkaline diuretic is important in this case, as the Acetate or Citrate of Potassa, or sometimes the Iodide of Potassium for the purpose of preventing the organization of false membrane and promoting secretion. To the surface I apply the irritating plaster, leaving it on without changing until the patient complains of soreness.

CHRONIC PLEURITIS.

Under this head may be included those cases in which the acute symptoms having stopped, the disease continues without any very aggravated features, and those in which it commences slowly and insidiously, without any severe pain or constitutional disturbance, and in which measures are not adopted for its removal. These last cases are by far the worst, as there is danger of mistaking the affection, or considering it some unimportant matter, and thus neglecting proper treatment until extensive change of structure has taken place.

SYMPTOMS.—Chronic pleurisy manifests itself by occasional sharp, lancinating pains through the affected part, especially after exertion, much talking, coughing, etc. We call the pain sharp and lancinating, but it may be more properly described as an intense, sharp soreness, which catches the part during inspiration, and stops the movement at once; the patient calls it a “stitch in the side.” In addition, there is frequently soreness on pressure, or when the arm of that side is moved. Respiration is more frequent than usual and somewhat difficult, there is more or less of a hacking cough, sometimes dry, but very frequently attended with expectoration, sometimes copious.

The general health is markedly affected, there is loss of flesh and strength, the appetite is poor, bowels irregular, skin harsh and dry, pulse 96 to 100, and much irritability of the nervous system. Usually there is hectic fever in the evening and night sweats, sometimes as marked as in phthisis. In some cases, the inflammation terminates in suppuration; not only does the effused lymph break down into pus, but the

serous membrane becomes a pus secreting structure from its free surface. In such cases there is marked cachexia and finally secondary abscess, which terminates the life of the patient.

DIAGNOSIS.—Chronic pleurisy is in some cases an obscure disease, and with difficulty diagnosed. The pain in the chest, and cough, point to the lungs as the seat of the disease; the location of the pain and its character serve to distinguish it from phthisis, which in a very large majority of cases affects the apex of the lungs. The dullness on percussion in different portions, and the change in the respiratory sounds evidence the amount of change.

PROGNOSIS.—The prognosis will depend upon the extent of the disease, and the condition of the general health; as a general rule, it should not be considered unfavorable.

POST-MORTEM EXAMINATION.—The scalpel usually reveals sufficient lesions to account for death. We find the pleural membrane thickened, its surface dull and rough, more or less false membrane and adhesions, and a variable amount of fluid, sometimes serous, at others purulent. Occasionally the lung covered by the diseased pleura has suffered to a considerable extent; effusion has occurred in it, which breaking down may have been the cause of death. Occasionally the effusion has been so great as to prevent any expansion of the lung, and we find it occupying a very small space near the mediastinum.

TREATMENT.—This, like other chronic inflammations, yields slowly to measures that promote absorption, remove irritation, and restore the tone of the system. Counter-irritation is among the most prominent of our medicinal measures, and must be continuously employed. I use the irritating plaster, applying it over quite a large surface, re-spreading it every two days until it commences to feel unpleasant, then removing and reapplying when the irritation has gone down. A very good plan is apply it to one-half the surface you desire to affect, and when it has to be removed, apply it to the other half.

The means already named for the arrest of cough in speaking of other diseases of this class, may be employed here. In addition, a judicious alterative and tonic course of treatment should be adopted, as *R*, Compound Tincture of Corydalis, ʒiij; Essl. Tincture of Cornus, ʒj; Essl. Tincture of Hydrastis, ʒss; *M.*, and give one or two teaspoonsful every four hours; or

R, Podophyllin, gr. v; Ext. Hyoscamus, gr. xx; Iodide of Potassa, 3ss; Extract Nux Vomica, gr. iij; Hydrastine, gr. v; M. and make twenty pills, one to be taken four times a day.

The surface should be bathed in salt water once a day, and brisk friction employed, or if relaxed, a stimulant bath may be substituted for it. Sometimes we find great benefit, in cases where the skin is dry and harsh, from the warm bath, followed when the patient can bear it with the cold douche. In others, the patient being naturally robust, I should favor the use of the wet sheet pack, if it seems difficult to get a normal action of the skin. The same means may be employed for hectic fever and night sweats that were recommended under the head of consumption.

There are cases in which a more active treatment may be employed with advantage. Thus, if the disease is stubborn, and the strength is yet good, an emetic administered three or four times a week, will exert a marked influence on the disease, especially in cases where there is inconsiderable irritation of the lungs. This may be followed by Iodide of Potassium in full doses with some vegetable diuretic, and sufficient stimulants to prevent any prostrating effect. Cups thoroughly applied may be substituted for the irritating plaster, or both may be used.

When dropsy is the result, we must treat it in the manner hereafter named when considering that disease. Occasionally it is found necessary to remove the fluid by tapping, as is also the case in pyæmia. Should this be necessary in either instance, the best plan probably is to make the incision through the eighth or ninth intercostal space, just anterior to the angles of the ribs, and especially in accumulations of pus, remove the fluid with the syringe fitted to the trocar. In severe cases of this kind, it is recommended, after withdrawing the pus, to inject Tincture of Iodine, 3ij; Tepid Water, 3iij; and increase the strength each time, until in some cases it may be used pure. Others recommend the drainage pipe of Chassignac, which has been employed in some cases with marked success.

PERTUSSIS.

(WHOOPIING COUGH.)

We may properly consider this affection here, as, though primarily not one of the respiratory apparatus, it becomes dan-

gerous to life by the change it induces in these organs. It is eminently a contagious affection, though how it is propagated is more than is known. Usually it is contracted only when children are brought in such immediate proximity that the breath or exhalations of the diseased person is inhaled; this, however, is not always the case, as the poison seems to contaminate the atmosphere so that persons take it when at considerable distance from those having it.

It is undoubtedly a disease of the nervous system, the parts implicated being the pneumo-gastric nerve and medulla oblongata at its origin. And yet, post-mortem examination has not shown any more serious lesion of the medulla than evidence of determination of blood, which we would be likely to find in any case of such prolonged irritation of the parts to which the nerve is distributed. Like other contagious diseases, it runs a very regular course, and gives immunity against a subsequent attack.

SYMPTOMS.—Whooping cough manifests itself at first as a simple catarrh, the cough being gradually developed. Some days elapse before there is anything distinctive in it; and it is not usually well marked under from two to four weeks. The cough differs from others in that it seems to arise from an obstruction to respiration, and forcible inspiration is taken, and then there is a series of short expulsions until the air is all expelled; the tendency to cough still continuing produces great distress, and more or less evidences of impaired respiration are noticed. The *whoop* is developed when the cough becomes intense, and is the shrill sound formed as the air is drawn through the yet contracted larynx in the forcible inspiration succeeding the cough. The cough is paroxysmal, the paroxysms recurring at longer and shorter intervals in proportion to the severity of the disease.

There is a secretion of glairy mucus in most cases, which is raised at the latter part of the cough, and frequently seems to increase the suffering. If the disease is very severe, and sometimes when mild, there is a free yellowish expectoration. There is necessarily some fever at the commencement of the disease, and it may occur during its progress.

Writers divide pertussis into three stages: the first, lasting from five to fifteen days, presents the symptoms of ordinary catarrh; the second, lasting from three to six weeks, presents

the peculiar whoop, which gives name to the cough; and the third, of variable duration, is the period of decline.

It is during the second stage of the disease that the symptoms become so aggravated as to demand relief. We sometimes see the paroxysms of cough so severe that the little patient will turn purple in the face, gasp for breath, and even for some time afterward exhibit marked evidences of imperfect respiration. Occasionally bronchitis sets in and is very troublesome; sometimes there is marked congestion of the lungs; at others, the frequent and severe paroxysms of coughing prevent necessary rest, derange the functions of the body, and wear the patient out. In some cases there is tendency in the disease to recur, for months after it has ceased, on exposure to cold, though almost always in a mild form. Instead of impairing the strength of the lungs in feeble children, it seems rather to have increased it, and may sometimes be regarded as of marked advantage to the child.

DIAGNOSIS.—In the first stage it is with difficulty recognized, but in the second the paroxysmal character of the cough, its long continuance without seeming cause, and the peculiar whoop is sufficient for the diagnosis.

TREATMENT.—Many plans of treatment have been recommended for whooping-cough, but most of the remedies used are employed empirically. An emetic administered occasionally sometimes affords marked relief, and in some cases it may be repeated daily. The nauseant expectorants are employed by some, but without advantage; in fact, though they may mitigate the cough at first, they add to the danger by deranging the stomach.

A favorite prescription of mine in this disease is R, Extract Belladonna, gr. v; Alum, 3j; Syrup of Senega, Simple Syrup, āā, 3ij; M.; to a child two years old, a teaspoonful may be given every two or three hours; if older, the amount of Belladonna may be increased. The Nitric Acid mixture of Dr. Gibbs answers a good purpose: it is composed of Nitric Acid, dilute, 3xij; Compound Tincture of Cardamoms, 3iij; Simple Syrup, 3iijss; Water, 3j; M., and give a teaspoonful every two hours. Extract Conii, gr. xij; Aluminus, 3ss; Æther Sul., 3ij; Syrupus Simplex, 3iv; M.; in doses of a teaspoonful every two or three hours will sometimes give speedy relief. The formula of Dr. Beatty, used with much success: R, Compound Tincture of Bark, 3v; Tincture of Lytta,

Tincture of Camphor, āā, 3ss; M.; may be given in doses of a teaspoonful three or four times a day. The Cochineal mixture—℞, Cochineal, gr. x; Bitartrate of Potash, ʒj; Sugar, 3j; Water, ʒvj; M., and give a teaspoonful every three or four hours—is an old and popular remedy.

An infusion of common Clover Hay has been latterly recommended very strongly, as follows: ℞, Trifolii in fœno, 3ijss; Sacch. Cand., 3ij; Aqua Ballient, Oj; macerate the Hay in water for an hour with gentle heat, then boil down to a proper consistence; two teaspoonsful may be taken every three or four hours. Other remedies have been used, but without such success as would warrant their trial in severe cases. As regards the general treatment, it should be such as will keep the secretions free, and meet indications as they arise.

CHAPTER III.

DISEASES OF THE CIRCULATORY APPARATUS.

The diseases of this portion of the body have not been as thoroughly studied as those of other parts, probably on account of the obscurity of the symptoms. They are worthy of close attention, however, as, contrary to old authorities, they may be diagnosed with much accuracy, and treated with success.

DISEASES OF THE HEART.

The heart, the center of the circulatory apparatus, and the source of motive power for the circulation of the blood, is subject to both *functional*, and *structural* or *organic* disease. It is only within the last century that much attention has been directed to diseases of this viscus; and, although there is great difficulty in their investigation, yet our knowledge of many of them is pretty thorough.

With these, as with all other diseases, it is necessary, in order to make a correct diagnosis, that the structure and relations, as well as the physiological action of the organ, should be perfectly understood—we must know its healthy condition before we undertake to detect pathological change either in function or structure. This knowledge may be obtained, in some degree, from books—that is, from anatomical works, we learn the minutiae of its structure; from physiological works, its function—but he who depends altogether upon books to obtain a knowledge of either anatomy or physiology will be but very poorly instructed. In order to become a good anatomist, it is necessary that personal dissections and examinations be made; so in physiology, where possible, personal investigation is highly necessary. To illustrate this, it is only necessary to refer to the sounds produced by the heart's action—one of the most important means of diagnosing structural disease. A physician, depending upon books for his knowledge of the natural sounds, would be entirely incompetent to detect

an unnatural or morbid sound. This practical knowledge of the workings of this most complicated mechanism—man—can only be obtained by close and long-continued study. The eye, the ear, the touch, as well as the other senses, must be educated, so as to determine what is a physiological condition, and the slightest variation from this. It is this careful education of the senses, in addition to a thorough medical education, that makes the good physician, and gives him an eminent position in the profession.

OF THE STRUCTURE AND RELATIONS OF THE HEART.

We notice the structure of this viscus here, in order that we may fully understand the nature of the diseases to which it is subject:

1. The heart is a muscular organ, and hence this tissue is subject to the same affections as other muscles—*a*, to inflammation; *b*, to hypertrophy; *c*, to atrophy; *d*, to degeneration; *e*, to rheumatism; and, *f*, to spasmodic action.

2. It is invested with a serous membrane,—*a*, liable to inflammation; *b*, adhesive; *c*, morbid growths; and, *d*, effusions within its cavity.

3. Within its cavity we find fibrous tissues, the chordæ tendinæ, the base of the valves, and the interior structure of the valves, liable, principally,—*a*, to alterations of the structure, and, *b*, to fibroid growths.

4. It is lined by a membrane, resembling the serous membranes in many respects, which is liable,—*a*, to inflammation; *b*, to morbid growths and change of structure.

We find important nervous connections between it and other organs; 1st, with the entire sympathetic system of nerves, establishing a sympathetic relation between it and all parts of the body supplied by these nerves; we might specially note the stomach, digestive canal, chylopoietic viscera, the urino-genital organs, and lungs; 2d, with the spinal cord, through the fibers of communication between it and the sympathetic ganglia; 3d, with the medulla oblongata through the pneumogastric nerves, and hence with the brain and all parts to which this portion of the spinal cord sends nerves. It is also influenced by the condition of the blood, not only by that which is distributed to its own tissue, but also by the mass that passes through the cavities; and by the physical condition of the arteries and veins, especially by any obstruction to the

passage of blood through them. From these considerations, it is not strange that the viscus should be diseased, but that disease of it should be so unfrequent.

FUNCTIONAL DISEASES OF THE HEART.

Functional diseases of the heart may be divided into four classes:—1. Enfeebled action; 2. Irregular action; 3. Excited action; and, 4. Neuralgic affections.

ENFEEBLED ACTION OF THE HEART.

The action of the heart may be enfeebled by organic disease effecting a change in its structure, the feeble action being but a symptom. This, however, and the means of diagnosis, will be considered hereafter. We wish here only to consider it as it occurs without any lesion of this viscus. Two principal causes may give rise to this condition: 1st, an anæmic condition of the system, from whatever cause produced; and, 2d. from want of proper innervation. In the first instance, the cause is obvious, the diagnosis easy, and the indications of cure, plain.

Where want of proper innervation is supposed to be the cause, it becomes necessary to closely examine the patient, and ascertain, if possible, the lesion giving rise to this, and whether it is consequent upon debility of the cerebo-spinal, or sympathetic nervous systems. We sometimes observe cases of chronic disease, in which we can detect no lesion of digestion, assimilation, or excretion; and in which there is no apparent debility of the cerebo-spinal nervous system, but in which, although all the functions appear to be well performed, yet the patient is unable, from debility, to follow his usual avocation. These cases are probably rare, but yet occur sufficiently often to merit attention. My attention has been directed to the subject, from the occurrence of two such cases in my practice; a description of one of which may not prove uninteresting:—

Mr. G. T——, æt. 35, sanguine lymphatic temperament, stout, heavy-built, with every appearance of good health, was affected with chronic laryngitis through the spring of 1857. In June, he applied to me, and by the use of ordinary measures, the disease was nearly subdued in the course of a month. At this time, I noticed that the pulse was weak; that there ap-

peared to be difficulty in the circulation of the blood, and a tendency to congestion in various parts of the body; although at the same time the patient was stout and fleshy, the muscular system well developed, and digestion and excretion normal. Through the months of August and September, he had frequent attacks of almost entire muscular prostration, lasting from fifteen minutes to one or two hours; the recovery from them being gradual. These almost invariably commenced with a feeling of fullness of the chest and pressure over the heart, the pulse being very feeble. These attacks so increased in frequency, and the consequent debility was so great as to entirely preclude him from following his trade. A close examination of the heart and lungs, showed conclusively to my mind, that the viscera of the thorax were in a healthy condition. There was no tenderness in any part of the spinal column, nor any symptoms of affection of the brain; the appetite was good; bowels regular; and the secretions of the skin and kidneys, normal. In fact, after the most careful examinations of the case, by myself and others—watching it closely for months—I could detect no disease, to account for the symptoms, but the continued impaired action of the heart and weakness of the circulation, which undoubtedly arose from deficient innervation, the sympathetic nerves and ganglia supplying the heart being affected. This patient has nearly or quite recovered.

Several mild cases have come under my notice, in which other disease was aggravated from this cause. In a majority of them, probably, there was deficient innervation in all organs supplied from the sympathetic system of nerves.

TREATMENT.—Where debility or weakness of the heart's action depends upon anæmia, it will, in a majority of cases, be removed by the judicious use of tonics and Iron, the indications being to restore the normal quantity and quality of the blood. When it depends upon loss of nervous energy, the indication is to restore this; and here we find our therapeutic resources exceedingly meagre. It will probably be found, in a majority of cases, that the urine persistently contains a larger or smaller amount of the phosphates; which almost invariably occurs with a depressed state of the nervous system. From this fact I was led to employ the phosphates in the two cases above named, as well as in analogous cases; and so far, with the best results. I might premise, however, by stating, that it is

indispensable to success, that if the stomach and bowels be disordered, if there is indigestion, or the different nutritive processes are impaired, the attention must first be directed to these. At the same time, it is highly necessary that we have a normal action of the kidneys and skin. Having accomplished this, we may resort to measures to restore the deficient nervous force. Prominent among agents to fulfill this indication, I may name the different preparations of the Phosphates. I prefer the Hypophosphite of Lime, though the Phosphate may be used with advantage, or even finely powdered bone. These agents will have to be continued for a considerable length of time before much apparent advantage is gained; thus, in giving the Hypophosphite of Lime in five-grain doses, three times a day, in my worst case, it was some six weeks before I could perceive any improvement; yet after this, there was perceptible improvement each week. With the agent just named, I employed the Hydrochlorate of Ammonia in the same doses, the patient using a bath of the infusion of the bark of *Quercus Alba*, with brisk friction, twice a day. The Extract of *Nux Vomica*, given in the usual doses, gave temporary relief, as did *Belladonna*. Tonics and Iron appeared, if anything, to increase the disease. Moderate and continued exercise—as much as the patient could bear, without inducing symptoms of exhaustion—was always beneficial; as was also pleasant and agreeable company.

IRREGULAR ACTION OF THE HEART.

This, in a mild form, is quite a common affection, in persons of an irritable and debilitated habit. “The pulsations may be unequal in frequency and power, or they may be intermittent, reiterated, or fluttering. This state of action, although attending various dangerous diseases of the organ, may be entirely nervous, or connected with depressed organic nervous power, and enfeebled action of the stomach and bowels.” We observe it, sometimes, as a symptom of dyspepsia; especially where the disease has continued for a length of time in persons of a nervous habit. It is also a symptom in chronic inflammation of the lungs, where it has been of such extent as to prevent the free passage of the blood. It may also proceed from mental emotions, and from long-continued and severe

mental labor; especially in cases where the mind is troubled, as from want of success in life, etc. Probably the most frequent cause, when it is severe, is long-continued disease of the organs of generation, especially sexual excesses and masturbation. The disease arising from these latter causes frequently assumes a serious form, attended with a sense of weight, of sinking, or oppression, or anxiety, at the præcordia; dizziness, vertigo, singing in the ears, dimness of vision, etc. In severe cases, the pulse will rarely be found normal, either in frequency or regularity; sometimes soft, fluent, easily compressed, but the pulsations extremely irregular; at others, hard, sharp, quick, dirotous, or intermittent. In a majority of these cases, there will be found—especially if it has arisen from sexual derangement—tenderness on pressure, over the first and second cervical vertebra; and also over the last two; and, frequently, the patients will complain of a heavy, dull, aching pain in the back part of the head, or, at least, of a sensation of weight and soreness.

TREATMENT.—It is very important, here, that a correct diagnosis be made,—that we do not treat this symptom of organic disease as a nervous affection. Having decided that it is nervous, the next point to determine is, what has been the cause of it. If it has arisen from irritation, a disordered state of the stomach and bowels—and this is generally easily determined—the removal of the primary disease will be succeeded by the cessation of this symptom. If from any cause retarding the flow of blood, and consequent overloading of the cavities of the heart, we remove the cause if possible, and this symptom will in all probability cease. If from severe mental labor, such measures should be adopted as will give rest to the over-worked organ, and restore the natural tone of the system. If from sexual excitement, this must be controlled; and if from masturbation, the cause must be arrested, or but little good can be accomplished. In all cases, it becomes necessary to adopt measures to restore the general health, as the exhibition of the bitter tonics and Iron, the use of easily-digested and nutritious food, exercise in the open air, the daily bath—especially of some bitter infusion, as Cinchona, Hydrastis, Cornus Florida, etc., with brisk friction. It is also necessary that we pay especial attention to the secretions of the kidneys, bowels, and skin; for if expect to restore the tone of the system, we must have a normal action of the excretory organs.

In all cases, where there is tenderness on pressure over the cervical vertebra, or weight, pain, or soreness in the back part of the head, counter-irritation over the cervical region will be found of the greatest importance. I employ the irritating plaster, not as it is generally used, but by applying it for two, three, or four days, or until it commences to be painful; then removing for twelve or twenty-four hours; again applying it, continuing it in this way, without producing suppuration. It may also be applied over the region of the heart, in the same way. As internal remedies, in addition to tonics and Iron, I know of none better than the *Nux Vomica*, *Veratrum Viride*, and *Gelsemium*, as in the following formula: *R*, Tincture *Nux Vomica*, f3j; Tincture *Veratrum Viride*, f3j; Tincture *Gelsemium*, f3ij; *Syrupus Simplex*, f3ijv; dose, 3ss, three, four, or five times a day.

When there is debility of the nervous system, the Hypophosphite of Lime may be used. The additional means recommended for palpitation of the heart, are also often appropriate.

EXCITED ACTION OF THE HEART.

This is defined by Dr. Copland, as “strong, frequent, or tumultuous action, with an increase of the impulse and natural sounds of the heart, so as to be sensible, and often distressing, to the patient, without appreciable lesion of the structure of the organ.” Palpitation is a frequent symptom of some of the serious organic affections of the heart, to be hereafter described; hence, the diagnosis must be carefully made.

CAUSES.—Many causes may give rise to temporary palpitation of the heart; but it is only those cases in which palpitation is severe, long-continued, recurring frequently, and attended by manifest disease of the system, that we wish to consider. Three pathological conditions of the system may give rise to this disease: 1st, a change of the quantity or quality of the blood; 2d, irritability of the muscular fiber of the heart; and, 3d, irritation of some part of the nervous system; the last condition being much the most frequent cause.

SYMPTOMS.—Palpitation is frequently sudden in its occurrence, coming on after, or during, over-exertion; sometimes the slightest exercise will give rise to it, or after, or during,

any mental emotion; sometimes it comes on slowly, increasing in intensity gradually. The action of the heart is strong, sometimes labored; the natural sounds frequently increased in intensity, sometimes so as to be audible without placing the ear to the chest. The impulse of the heart against the parietes of the thorax is always perceptible when the hand is placed upon the chest; in severe cases, it may be noticed by the eye, so that the pulse may be counted without approaching the bedside. The patient generally complains of a sense of weight at the præcordia; sometimes pain, with difficult respiration, or sensation of smothering. Sometimes, when the action is excessive, it is irregular, tumultuous, and attended by distressing anxiety; sense of sinking, or anguish, at the præcordia; and by extreme restlessness, and a feeling of impending dissolution. The paroxysms may be of short duration, from a few minutes to one or two hours; or, they may continue for twelve, twenty-four, or even forty-eight hours. They mostly recur at irregular intervals, though sometimes they are periodic, occurring at regular periods.

DIAGNOSIS.—In general it is quite easy to determine whether or not, the palpitation depends upon organic disease of the heart, if the patient be examined when the paroxysm is off. In organic disease, when palpitation is induced, the extended dullness on percussion, the morbid or adventitious sounds, the more or less constant dyspnœa, nervous congestion, bloated countenance, dropsical effusions, etc., will determine the case.

TREATMENT.—If produced by alteration in the quantity or quality of the blood, our measures should be directed to the attainment of a normal condition of this fluid. In nearly all cases, we find deficient action of the excretory organs, and consequent retention of excrementitious materials. By the use of the alkaline bath, or cold bath, if the skin is harsh; or a bath of an infusion of the bitter tonics and astringents, if it is relaxed or flabby, we obtain normal excretory action. The diuretic salts, in small doses, will increase the excretion of the kidneys. The bowels should be kept in a soluble condition with mild laxatives. Then, the stomach being in a normal condition, by the use of bitter tonics and Iron, nutritious food, and moderate exercise in the open air, we increase the quantity and quality of the blood.

For the temporary relief of the patient during the parox-

ysm, Tincture of Gelseminum in 3ss doses; or, what is better, the Concentrated Tincture of Lobelia, in the same doses, is almost always sufficient.

In those cases where the disease is undoubtedly owing to increased irritability of the muscular fiber of the heart, or irritation of the nerves supplying it, we use means to remove these conditions. First, if this irritability has been produced by sexual excesses, or masturbation, we direct treatment for the relief of this excitation of the organs of generation. In such cases, and also in many others, we will find tenderness on pressure at the base of the brain and over the cervical vertebra. Here the irritating plaster, continued until the tenderness is entirely removed, is one of our most efficient measures. The use of small doses of Gelseminum, Aconite, especially Lobelia, infusion of Scutellaria, and Veratrum, is peculiarly serviceable. The irritating plaster, applied over the region of the heart, will also, in many cases, afford great relief. Hypophosphoric Acid, with small quantities of Sulphur, prove very efficient, when there is accompanying irregularity of the pulse.

NEURALGIA OF THE HEART.

This affection is considered as but a modification of angina pectoris; yet it differs from that in many of its symptoms, which go to show that the nerves of adjoining viscera are more or less affected. The disease is somewhat rare. I have seen but one severe case, and one in which the symptoms were comparatively mild.

SYMPTOMS.—The disease frequently comes on slowly, the patient, for two or three days or more, complaining of a feeling of tension and dull aching in the region of the heart, with occasional sharp, piercing pains, which last but for a moment. When fully developed, there is a most acute, lancinating pain passing from under the left nipple, backward, to the spine, frequently radiating to the left arm, left side of the neck, and adjacent viscera. The paroxysms of pain are almost instantaneous in their accession, lasting from a few minutes to an hour or more; when long continued, there are intervals of comparative ease, in which there is nothing but a feeling of tension and a dull aching. The disease is intermittent, recur-

ring sometimes once or twice a day; at others, not for several days.

During the paroxysms, the action of the heart is frequently accelerated; sometimes irregular; rarely slow and labored. There is no morbid sound, unless the patient is somewhat anæmic, when there is a slight *bellows*-sound on auscultation; respiration is rarely affected. The general health of the patient is frequently impaired at the commencement, or, if not, becomes so in a short time; the appetite is variable and capricious; bowels constipated or irregular; skin and kidneys fail to act properly; patient nervous and irritable, etc. Copland remarks, that the disease is of long duration; the shortest period in his cases was six or seven months; in one, where the interval between the attacks was long, it was many years.

CAUSES.—In some cases we are unable to detect any predisposing cause; in many, however, there has been noticed an impairment of the general health, with derangement of the nervous system, produced by great and long continued emotional excitement, or by continued excesses. The exciting causes are such as produce neuralgia of other parts.

TREATMENT.—For the relief of the paroxysm, the treatment is simple, but most efficient: *R*, Con. Tincture of Lobelia, 3j; Con. Tincture of Macrotys, 3ij. Give 3ss every ten minutes, until nausea is induced. Apply a sinapism to the præcordia, as hot as it can be borne, and use the hot Mustard foot-bath.

The treatment for a radical cure varies greatly, according to the condition of the patient and the peculiar character of the disease. I might say, treat the patient on general principles; but this would be indefinite—and some have no principles in medicine. If the paroxysms recur with regularity, the patient living in a malarious region, we would expect to use Quinia with great advantage; and it would undoubtedly, in some cases, arrest the disease at once. Such cases, however, are rare. In all cases, normal action of the excretory organs should be obtained; the appetite and digestion, as well as the quantity and quality of the blood, improved by the judicious administration of bitter tonics and Iron, exercise in the open air, avoidance of emotional excitement, and a carefully selected diet. If there be nervous exhaustion, the use of the Hypophosphites, with a small portion of Sulphur and Quinia, is very beneficial. To prevent the recurrence of the paroxysms, the agents named for its relief would be efficient, as: *R*, Con.

Tincture of Lobelia, ʒj; Tincture of Macrotys, ʒss; Tincture of Gelseminum, ʒj; Tincture of Aconite, ʒj; Simple Syrup, ʒvj—of which a teaspoonful might be administered three or four times a day.

In many cases there will be found tenderness on pressure, over the cervical vertebra, which should be removed by counter-irritation. The irritating plaster, applied over the region of the heart, has also proven beneficial.

ANGINA PECTORIS.

This disease was first fully described and named by Dr. Heberden, in 1768, though obscure descriptions of it may be detected in the earliest medical writings. The heart is the organ principally implicated, though the reepiratory organs are always involved. Much difference of opinion has existed in regard to the nature of the disease, some taking the ground that it was invariably caused by organic disease of the heart or arteries; others, that it was essentially a nervous affection. Post-mortem examination shows, that in a majority of cases, there is structural lésion of either the heart or large arteries; but in others, no such lesions exist. In forty-five cases, examined by Dr. Forbes, thirty-nine exhibited disease of the heart or great vessels; there was ossification or thickening of the coronary arteries in sixteen cases; ossification or other disease of the *valves* in sixteen cases; ossification or dilatation, or both, of the aorta, in twenty-four cases; and in twelve cases there was preternatural *softness* of the heart. If we were not well aware that such lesions are frequently found in old persons, who have never exhibited the slightest symptom of the disease, we might look upon them as the proximate causes. I will, therefore, describe it simply as a nervous affection.

SYMPTOMS.—Angina pectoris is sometimes preceded by derangement of the digestive organs, deficient action of the excretory organs, and more or less oppression of the respiratory organs, which is generally spasmodic; but it as frequently occurs without any premonition, when the patient is walking, especially when ascending a hill or flight of stairs, or at work, or during emotional excitement, or in the chronic form, even when asleep.

In severe cases the patient is seized with painful constriction

of the chest, especially in the cardiac region. The pain extends to the left arm, sometimes even to the tips of the fingers, and amounts to excruciating agony. It is accompanied with an almost intolerable sense of suffocation, convulsive dyspnoea and palpitations; always with extreme anxiety and a sense of impending dissolution. When attacked, the patient strives to grasp some object to support him, and immediately stands still, feeling that motion would produce an entire suspension of living power. During the paroxysm there is flatulent distension of the stomach, with a feeling of irritation, which is relieved by eructations. The pulse is generally weak, irregular, or intermittent; sometimes but little changed; rarely full, active and bounding.

The paroxysm continues from a few minutes to one or more hours; when induced by walking or other exercise, it is generally short, but exceedingly violent; when the patient is at rest, especially when the disease has assumed a chronic form, it is long continued, but mild. When the disease is of short standing, the paroxysms occur at long intervals; these are gradually shortened, until, in some cases, there is but little exemption from them.

"The *chronic* form of the disease," says Dr. Copland, "is characterized by the circumstance of its being frequently a consequence of the acute; by the occurrence of the fit, from the slightest causes, and after short or imperfect intervals of exemption; by its recurrence when the patient is at rest or asleep; and by its much longer duration, but less extreme violence. Even if this form be induced by exercise, rest has but little influence in shortening its duration, as in the preceding; and the paroxysm has been protracted, not only for some hours, but even for several days. Palpitation of the heart, irregular and intermitting pulse, are more frequently concomitants of this state of the disease, than of the other."

CAUSES.—This disease has been observed to occur most frequently in persons of a rheumatic or gouty constitution; in those who lead an indolent or sedentary life, or have been subjected to much and continued anxiety, or have been fast livers, guilty of such excesses as impair the nervous system and powers of digestion. It is a disease of the middle-aged, and men are far more frequently attacked than women. The digestive powers are invariably impaired, though the condition of the stomach varies greatly: sometimes, torpor; at others, irri-

tation; again, chronic inflammation. Digestion being imperfect, nutrition of structures can not be normal, which would, in some degree at least, account for the structural changes found in the heart, and especially for the perversion of innervation, which is the special feature of the disease.

PROGNOSIS.—The prognosis may be considered favorable if the case is recent, and there is no structural lesion of the heart. If, however, the constitution is badly impaired, with organic disease of this viscus, a radical cure can not be effected.

TREATMENT.—For the arrest of the paroxysm, the patient should be kept entirely quiet; warmth applied to the extremities, if necessary; or, if circulation is impaired, friction to the surface, and stimulating applications to the thorax. As an internal remedy, I believe no agent is more efficient than the Lobelia. In a very severe case, the administration of a teaspoonful of the Concentrated Tincture was followed by immediate relief in two paroxysms. Tincture of Gelsemium has been recommended, as has also the Compound Tincture of Cajeput, when the circulation is very feeble. A mild purgative, as Compound Powder of Jalap and Senna, with some stimulating anti-spasmodic, as Tincture of Lavander, Spiritus Ammoniae Aromaticus, Capsicum, etc., is advantageous when the attack is passing off.

The treatment for the radical cure will be very similar to that named for neuralgia of the heart. Especial attention should be paid to the condition of the stomach and digestive organs, the excretions kept free, the quantity and quality of the blood improved, and those special remedies employed which increase normal innervation. All exciting causes should be studiously avoided; the patient should be temperate in all things. As a means of warding off the attacks, the agents named under the head of neuralgia may be employed with much advantage.

INFLAMMATION OF THE HEART.

For the purpose of better describing this affection, we may divide it according to the character of the disease and its seat into—1st, rheumatism of the heart; 2d, pericarditis; 3d, endocarditis; and, 4th, carditis. It is not always possible to diagnose the exact site of the disease, even when confined to one part, and in many cases the inflammation affects, more or less,

all parts of the viscus; but as the treatment for each is very similar, it does not make much difference.

RHEUMATISM OF THE HEART.

This is generally a metastasis of the disease, the patient having been affected with rheumatism of some portion of the body, it ceases or becomes modified, and the heart affection ensues. This, however, is not always the case, as it is a well established fact that it may attack the heart first; in some cases, no other portion of the body being affected.

SYMPTOMS.—In the mild form, the patient complains of a dull, gnawing pain in the region of the heart, with sometimes occasional sharp, darting pains, which last but for a moment; there is a feeling of depression and anxiety, that the patient can not account for; frequently a sensation of dyspnœa, and sighing respiration; in some cases the action of the heart is strong, with marked impulse on the thoracic walls, more frequently it is feeble, the normal sounds being much lessened. The pulse is frequent, from 100 to 140 per minute; stroke, sharp and quick, sometimes irregular. There is no heat of the skin; frequently, coldness and pallor of the extremities, with irregular action of the excretory organs.

In severe cases, the patient experiences a violent pain in the region of the heart, of a lacerating or rending character; there is extreme anxiety, preceded or attended with chills or rigors. In a short time, reaction is so far established that the trunk becomes hot, but the extremities and face are cold, and the entire body is covered with perspiration, warm on the body, cold on the extremities. Respiration is performed with the greatest difficulty; the distress and agitation of the patient being extreme. "The patient feels every pulsation of the heart; rolls about to obtain ease, and presses his hand forcibly against the præcordia. The chest is elevated; the head thrown back; there is great thirst, but drink is refused on reaching the lips; and there is often loquacity, passing into delirium, as the disease advances." There is considerable variation in the pulse, but it is generally small, weak, irregular or intermittent, and very frequent. If the disease is not soon arrested, jactitation comes on, there is constantly recurring fits of syncope, continued delirium, and very soon death terminates the sufferings of the patient.

It will be seen from the above symptoms that the diagnosis

is tolerably easy. The prognosis may be considered favorable in a majority of cases, if the treatment is prompt and well directed.

TREATMENT.—In the mild form of the disease we employ the direct sedatives, as \mathcal{R} , Tincture of *Veratrum Viride*, $\mathfrak{z}\mathfrak{j}$; Concentrated Tincture of *Macrotys*, $\mathfrak{z}\mathfrak{i}\mathfrak{i}\mathfrak{j}$; *Aquæ*, $\mathfrak{z}\mathfrak{v}\mathfrak{j}$; give a teaspoonful every half hour until the frequency of the pulse is reduced, and the patient complains of a dull, heavy pain in the head.

The Mustard foot-bath, a large sinapism to the præcordia, and one to the spine, immediately opposite, is very important. These means will mitigate the sufferings of the patient very much, producing profuse perspiration. Then, to remove the *materies morbi* from the system, it is essential to obtain free action from the kidneys. In some cases, an infusion of Hair-cap Moss, with the addition of Citrate or Acetate of Potassa, so that from $\mathfrak{z}\mathfrak{i}\mathfrak{j}$ to $\mathfrak{z}\mathfrak{i}\mathfrak{i}\mathfrak{j}$ will be taken in the course of twenty-four hours, will answer an admirable purpose. The old-fashioned formula— \mathcal{R} , *Asclepias Tuberosa*, *Eupatorium Perfoliatum*, $\mathfrak{a}\mathfrak{a}$, $\mathfrak{z}\mathfrak{j}$; *Sanguinaria Canadensis*, $\mathfrak{z}\mathfrak{i}\mathfrak{j}$; Nitrate of Potassa, $\mathfrak{z}\mathfrak{i}\mathfrak{j}$; pulverize thoroughly, and give in $\mathfrak{z}\mathfrak{s}\mathfrak{s}$ doses, every hour or two, until nausea is induced—is remarkably efficient in all forms of inflammatory rheumatism. In some cases, it appears almost impossible to get secretion from the kidneys, they being extremely congested; the symptoms are generally evident; weight and tension in the loins; dull, heavy pain in the back; and a disagreeable sensation of heat and tenesmus in the urinary passages. In such case, we apply active counter-irritation to the loins, and for further relief, prescribe a brisk cathartic, as \mathcal{R} , *Podophyllin*, grs. \mathfrak{iv} ; Bitartrate Potassa, $\mathfrak{z}\mathfrak{i}\mathfrak{j}$; make three powders, and administer one every four hours.

In a severe case, our measures must be more active, and are somewhat different; here, it will not, as a general rule, answer to use sedatives, until the heart acts regularly. I commence the treatment by the application of six or eight cups over the præcordia, drawing them well, and scarifying; apply to the entire lower extremities flannel cloths wrung out of a hot infusion of Mustard, changing them every ten or fifteen minutes. Internally, one of the cathartic powders named above, and \mathcal{R} , Concentrated Tincture of *Maerotys*, $\mathfrak{z}\mathfrak{i}\mathfrak{i}\mathfrak{j}$; Tincture of *Lavandula Comp.*, $\mathfrak{z}\mathfrak{i}\mathfrak{j}$; *Syrupus Simplex*, $\mathfrak{z}\mathfrak{i}\mathfrak{i}\mathfrak{j}$; *M.*, and give a teaspoonful every hour.

In the course of five hours, the patient can be turned upon his side, when I direct cups and scarification to the spine, over the entire dorsal region; the number applied depending upon the severity of the case. Then we can commence the use of the direct sedatives, and the additional treatment recommended for the mild case. The object we wish to obtain by the active treatment recommended above is temporary relief for the over-burdened heart. That it will not do to use sedatives at first, is proven to my satisfaction by the fatal termination of three cases which have come to my knowledge, and one under my own observation, in which *Veratrum* was used at the commencement. The means I recommend will relieve the over-burdened organ, and then sedatives can be employed without danger.

In chronic rheumatism of the heart, I employ *Veratrum* and *Macrotys*, in suitable doses; the irritating plaster to the præcordia, and, if there is tenderness on pressure, to the spine; Citrate or Acetate of Potassa, as a diuretic; the daily use of the alkaline bath; the bowels to be kept in a soluble condition; and suitable bitter tonics and Iron, to improve the quantity and quality of the blood.

PERICARDITIS.

SYMPTOMS.—Very frequently the disease is ushered in by a marked chill or rigor, though sometimes it is difficult to detect. To this succeeds febrile reaction; the skin becomes hot, though perspirable; the pulse is generally full, strong, hard, and frequent; the urinary secretion is somewhat arrested, and bowels constipated. Considerable oppression at the præcordia is felt, with much anxiety, which constantly increases. A more or less acute pain is experienced under the left nipple, sometimes so severe as to render respiration extremely difficult; there is tenderness on pressure over the heart. The pulsations of the heart are much stronger than usual, sometimes regular, though frequently irregular, tumultuous, unequal or intermittent; frequently, paroxysms of palpitation, when the impulse can be readily felt by the hand. By the end of the second day, we find that the feeling of oppression and anxiety has so increased as to be almost insupportable. The pulse is unequal, oppressed, irregular, small and rapid, often intermittent. The skin is either

hot, dry, and constricted, or an increased heat of the trunk, with coldness of the extremities, which are frequently covered with a cold, clammy perspiration: sometimes nausea and vomiting come on, which, to some extent, obscures the disease; in other cases, a severe singultus occurs, greatly aggravating the sufferings of the patient. If the adjoining pleura is implicated, respiration is hurried, short and shallow, sometimes interrupted by broken sighs, or by deep catching inspirations. Sometimes, in this stage, there is noticed a diffused rumbling sound, resembling the *to-and-fro* sound in pleuritis; frequently there is a more or less marked bellows-sound.

With the appearance of effusion—which may occur at any period from the first to the fourth day—we notice an increased dullness on percussion, and diminution of the sounds of the heart on auscultation. If there is much effusion, there is marked and extensive dullness on percussion; a weak and diffused impulse of the heart; a small, weak, irregular pulse, and extreme or constant dyspnoea. Very frequently the countenance becomes tumid, bloated and livid. Motion induces faintness or syncope, the pulse nearly disappearing.

Sometimes the general symptoms are very light during the entire course of the disease, there being but the anxiety and oppression, with occasional lancinating or tearing pains, and increased frequency and irregularity of pulse to mark the progress of the disease.

CARDITIS.

SYMPTOMS.—The patient experiences a violent pain in the region of the heart, with anxiety, preceded or attended by rigors, chills, or tremblings of the whole frame. To these succeed increased heat about the præcordia, or in the trunk, while the extremities and face are cold, and the whole surface is covered by perspiration, which is cold on the extremities. The pain is concentrated in the situation of the heart, is lacerating or rending, accompanied by the utmost agitation and expression of anxiety and distress; sometimes by screams, and occasionally by general convulsions or swoonings. The patient feels every pulsation of the heart, rolls about to obtain ease, and presses his hand forcibly against the præcordia. The chest is elevated, the head thrown back; there is great thirst, but drink is refused on its reaching the lips; and there is

often loquacity, passing into delirium as the disease advances. The pulse varies remarkably, but is generally unequal or irregular, and remarkably small and weak, or indistinct. If the disease is not soon arrested, constant jactitation or tremor, recurring fits of syncope, delirium, and death, take place.

ENDOCARDITIS.

SYMPTOMS.—If the inflammation is confined to the endocardium, actual pain is seldom felt, the patient complaining of oppression or anxiety in the præcordia, with faintness. It is ushered in by a slight chill, but febrile reaction is not very well marked. The *physical signs*, says Dr. Copland, require the closest attention: “1. The præcordial region, in simple endocarditis, is shaken by the violence of the heart’s action, the hand being forcibly resisted by the impulse, when applied over this region. The pulsations are felt over a greater extent than natural, owing to the turgescence of the organ in an inflamed state; and a vibratory tumor, more or less marked, is also sometimes felt. 2. *Percussion* furnishes a dull sound over a greater extent of surface than natural—from four to nine or twelve square inches. But in order to distinguish this sound from that attending effusion into the pericardium, it is necessary to observe that it coëxists with a visible, superficial, and sensible pulsation of the heart; the last being profound, and hardly visible or sensible in pericarditis with effusion. 3. *Auscultation* detects a bellows-sound, which marks the true normal sounds, or one of them only. The sound is the louder, the stronger the action of the heart; and is also rougher, the greater the swelling of the valves, and the more abundant and concrete the exudation of lymph from the inflamed surface. Sometimes, when the palpitations are violent, a metallic sound, isochronous with the systole of the ventricle, is heard. 4. The *force* of the heart’s contractions is changed, both to the eye and touch, and the frequency equally affected; the pulse rising sometimes as high as 140 and 160, or even higher, in a minute, and becoming irregular, unequal or intermittent. 5. *Animal heat* is generally also increased, but not usually in proportion to the augmentation of the circulation. The arterial pulsations represent the *frequency*, but not the *strength* of the heart’s action in this disease; for, while the contractions of the heart

are energetic, the *pulse* is generally small, soft, and indistinct. This is owing to the obstacle opposed to the circulation by the sucking of the valves or orifices, or both, or by the fibrinous exudations formed around them—a smaller quantity of blood being thrown into the arterial trunks; hence, probably, arise the pallor, anxiety, jactitation, faintness, leipothymia, want of consciousness, etc., so frequently observed.”

If the venous circulation is obstructed, the dyspnœa is greatly increased, the face is bloated and livid, and œdema appears. In such case, the patient experiences the most distressing oppression; can not lie down in bed; is watchful, restless, and subject to constant jactitation.

POST-MORTEM APPEARANCES.—In *pericarditis*, when death occurs early in the disease, there is frequently nothing but redness and injection of the pericardium; sometimes the redness is increased by infiltration of minute quantities of blood into the adjacent tissues, so as to give rise to ecchymosis, or red spots. In the stage of effusion, there are various appearances; the effused fluid usually separates into a turbid or flocculent serum, and a concrete or fibrinous false membrane. In some instances the effusion consists of a well-formed pus; in others there is no fluid, the exudation forming false membrane, and fibrinous adhesions between the free surfaces of the pericardium. The effusion in *pericarditis* varies from one to two ounces to as much as four pounds.

In *carditis*, the structure of the heart is discolored reddish-brown, softened and injected. Sometimes, but rarely, there has been observed collections and infiltrations of pus. Sometimes there is softening, the heart being whitish, grayish, or yellowish.

In *endocarditis*, there is sometimes but little evidence of the disease, beyond slight thickening and softening of the membrane, which is more easily separated from the muscular structure. Occasionally there is great contraction of the openings, and thickening of the valves. Frequently the formation of fibrinous concretions from the orifices, valves, or internal surface.

DIAGNOSIS.—The diagnosis must be in part by *exclusion*; then we have the prominent symptoms, continued pain or anxiety in the region of the heart; palpitations; a tendency to syncope, or faintness; dyspnœa; acceleration and irregularity of the pulse; with symptomatic inflammatory fever. As

has been before remarked, we rarely find the inflammation confined to one tissue; hence we have to take the aggregate symptoms of the three forms of inflammation, to establish the diagnosis.

PROGNOSIS.—Though the disease is one of the most severe to which mankind is liable, yet the prognosis may be considered favorable, if prompt treatment is adopted in the early stage. The *sequelæ* of the disease embrace nearly the entire list of chronic structural diseases.

TREATMENT.—The treatment of inflammation of the heart, must be prompt and decisive; the first indication being to relieve it by getting determination of blood to other parts, and lessening irritation. To fulfill this, I direct the application of cups to the præcordia, with scarification, if the case is severe, following with fomentations of Lobelia. The extremities should be wrapped in cloths wrung out of Mustard-water, as hot as they can be borne; and these should be continued until free circulation is established. If there is nothing to contra-indicate, give, at the commencement, a cathartic, as \mathcal{R} , Podophyllin, gr. j; Bitartrate of Potassa, grs. xx, and repeat, every four hours, until the bowels are freely moved. To lessen irritability of the heart, no agents are better than \mathcal{R} , Tincture Lobelia, Tincture Macrotys, Compound Tincture Lavender, āā , administered in drachm doses, every hour or two hours.

Frequently, much benefit is obtained from brisk counter-irritation, the entire length of the spine. To assist the action of the other remedies, and as a diluent, use freely an infusion of *Asclepias Tuberosa*. These means should be continued until the circulation becomes free, and the action of the heart regular; then put the patient upon the use of special sedatives, *Veratrum* and *Aconite*, in small doses, largely diluted, and frequently repeated. Still use the infusion of *Asclepias*, adding to it such a quantity of Acetate of Potassa, that the patient will take about ʒiij in the course of twenty-four hours. A weak Mustard hand-bath should be employed once or twice per day, and counter-irritation to spine and præcordia continued, until the patient is convalescent. Other treatment, after the inflammation is arrested, will have to be left to the good judgment of the practitioner, meeting the indications as they arise.

CHRONIC STRUCTURAL DISEASE.

There is a large class of cases in which the health is slowly impaired, and death eventually induced, by derangements of the circulation, which depend on organic changes of the heart. These changes affect its contractile power and its valvular apparatus. The principal of these organic lesions are, *hypertrophy*, *attenuation*, and *structural alteration* of the muscular walls of the heart, on which its contractile powers depend; and valvular derangements, which either interfere with the perfect closure of the different orifices of the heart, and thereby permit a regurgitation of the blood, or else offer obstacles to the onward flowing of the blood in its normal direction.

These diseases are diagnosed principally by physical signs, the most important of which are obtained by auscultation. During the healthy action of the heart, if the ear is applied to the præcordia, two sounds are heard. The first is synchronous with the pulse, is long and muffled; the second immediately follows, and is short and clear; then a pause, and they are repeated. The first has been termed the *systolic* sound, and is undoubtedly produced by the contraction of the ventricles; the second—the *diastolic* sound—is produced by the back stroke of the blood and the unfolding of the semi-lunar valves. These sounds recur with the greatest regularity during the healthy action of this viscus, so that alterations in its *rhythm* become evidences of diseased action. They become more intense, if the walls of the thorax are thin and elastic; or if the spongy texture of the lung is replaced by solids or liquids; or if there is excessive contraction of the walls of the heart. They are less intense, if the heart is farther removed from the thoracic wall, or by thickening of the same; or if there is defective contraction of its walls. They are changed in character, or replaced by adventitious sounds, by changes in the blood—which would impair its circulation—by changes in its muscular parietics, and especially by structural alteration of its orifices and valves. These sounds may be loud or feeble, clear or muffled, extended, distant, ringing, etc.

The principal adventitious sounds, are the *bellows* sound, the *rasp* sound, *saw* sound, and *file* sound. The first, or *bellows* murmur, may be the result of several lesions, as—1st, of dilatation of one or more of the heart's orifices, with deficien-

cy of the valves, and consequent regurgitation of the blood; 3d, anemia, with defective action of the heart; 3d, polypoid exudations resulting from inflammation; and, 4th, irregularity or roughness of the surface of the valves, or vegetations, or calcareous formations within or upon them. The three sounds last named, are produced by such structural changes of the orifices and valves as give rise to unnatural motions in the current of the blood circulating through the heart.

HYPERTROPHY OF THE HEART.

Hypertrophy of the heart exists in two forms, *with* and *without* dilatation of its cavities; the first is of far more frequent occurrence. It may also be confined almost entirely to one cavity, as in hypertrophy of the left ventricle, from obstruction of the aortic opening. The *causes* of hypertrophy are such as will increase nutrition, as continued determination of blood, the result of inflammation, rarely excessive innervation, and obstruction of the free passage of the blood from the heart, which necessitates an increased power, and a consequent excess of nutrition. In almost all cases, it is associated with other disease.

SYMPTOMS.—The local signs of the disease consist principally in an increased force of the heart's contraction, manifest by a more extensive and enduring impulse felt in the cardiac region, an increased dullness on percussion, and an increase of the sounds. The extent of dullness on percussion is not as great in simple hypertrophy, as it is in hypertrophy with dilatation; the sounds are likewise more prolonged and dull in the first than in the last; frequently, in hypertrophy with dilation, the sounds are remarkably clear, loud and short.

If there is no other marked structural change than the hypertrophy, the general symptoms are such as would arise from an excess of force in the circulation of the blood; sometimes, apoplectic symptoms, tendency to active hemorrhage, etc.

TREATMENT.—The treatment of this condition is principally hygienic. The patient should be placed on an unstimulating diet, rather scanty than otherwise; excessive exertion should be carefully avoided, and all the secretions kept free. The object is, to reduce the quantity of nutritive material in circu-

lation to the lowest quantity compatible with health, and to remove, as far as possible, any cause of excited action of the heart. If there should be irritation of the organ, counter-irritation is the most efficient means for its removal.

ATTENUATION OF THE WALLS OF THE HEART.

This is a very rare affection, in any considerable degree, without dilatation, as the nutrition of the heart is seldom so much impaired, even when other muscular structures suffer greatly. The evidences of it are very obscure during life, being nothing more than want of power in the circulation of the blood. The same tonic and stimulant plan of treatment we would adopt in defective nutrition of other parts, would be applicable here.

Attenuation with dilatation is of more frequent occurrence, the symptoms being, according to Copland, "slight palpitations, with dyspnœa and cough; the impulse of the heart being weak and diffused; the sounds being louder, clearer, shorter, and heard over a larger extent of the chest than natural; and the pulse being weak, small and irregular." The treatment—so far as we can treat it—is obvious; improve the general health and tone of the system, by the judicious use of bitter tonics, Iron, the use of nutritious food, exercise in the open air, etc.

ALTERATIONS IN THE STRUCTURE OF THE HEART,

. Fatty degeneration, softening, calcareous degeneration, etc.,—can rarely be detected during life. The symptoms, if any exist, are those of debility, which would indicate the proper treatment. These cases frequently prove suddenly fatal, without any, or but little, premonition.

DISEASE OF THE VALVES.

We may properly divide disease of the valves of the heart into two classes: first, where, from contraction of the orifice, or change in the structure of the valves themselves, the free passage of the blood is prevented; and, second, where

the valves are insufficient to close the opening, permitting regurgitation.

Obstruction to the passage of blood through the orifices, is generally attended with the development of one of the adventitious sounds—*i. e.*, the saw, rasp and file sounds,—especially if in any considerable degree; if not, the alteration is merely a roughing of the natural sounds of the heart. The general symptoms depend somewhat upon the situation of the disease.

The left *auriculo-ventricular* opening is most frequently involved. The cause of the obstruction may be, contraction of the opening, thickening of the valves, fibroid vegetations, cartilaginous or ossific formations, from or within their structures. If the obstruction is considerable, the blood can not pass freely from the lungs; hence, congestion, apoplexy, and hemorrhage of the lungs, are of frequent occurrence. In these cases, all the general symptoms sometimes point to the lungs as the seat of the disease; the cough, expectoration, dyspnœa, etc., seem sufficient evidence on superficial examination. The morbid sound, heard on auscultation, is either a saw, rasp, or file sound, or a roughened bellows murmur, not very intense; it is most intense at the left side of the sternum, between the third and fourth ribs, and occurs at the time of the production of the second natural sound.

Obstruction at the *aortic orifice* generally causes enlargement of the heart, with hypertrophy, especially of the left ventricle. When in considerable degree, the pulse is small and weak, and the general symptoms such as would arise from obstructed circulation of the blood. If the entire heart is hypertrophied, the contractions necessarily being forcible, the vis a tergo of the blood from the right side to the lungs is markedly increased, and its free passage from them being obstructed by the diminished aortic opening, we frequently have hemoptysis, cough, increased expectoration, and other evidence of disease of the lungs. In either of these cases, dropsy may result, if the patient becomes debilitated. This obstruction is evidenced by a bellows sound, which is superficial, occasionally sibilous, marking or replacing the first natural sounds. If it arises from vegetations from the semi-lunar valves, or cartilaginous or ossific formations within, then the sound is generally a *saw sound*. These sounds can generally be heard for some distance over the larger arteries.

Obstructions of the *right auriculo-ventricular orifice*, is next

in frequency. It is evidenced by a deep blowing or fling sound, most distinct under the junction of the fourth rib with the sternum; it replaces the second natural sound. In this case, there being obstruction to the free passage of venous blood, we find the jugular veins prominent, and when severe, evidence of general venous congestion. Dropsy is a very frequent result, when the general health becomes impaired. There is rarely obstruction at the pulmonary orifice.

Insufficiency of the mitral valves occasions a morbid sound of either of the three characters named, and is heard at the time of the first natural sound. The pulse is always irregular and intermittent, with general symptoms of disordered circulation. In some cases, the lungs suffer in a remarkable degree.

Insufficiency of the aortic valves, is marked by a short, whiffling, or rasp sound, replacing the second natural sound. The impulse of the heart is generally strong and heaving, with strong pulsation, and sometimes purring thrill over the carotid arteries. This affection—as is the case with most heart diseases—precludes the possibility of laborious exercise, though frequently the general health is but little affected.

Insufficiency of the tricuspid valves, is marked by either a saw, rasp, or bellows sound, which replaces the second natural sound. Owing to regurgitation, and consequent obstruction to the venous circulation, there is distention of the jugular veins, with *pulsation*. In this disease there is marked venous obstruction. The health is considerably impaired, and dropsy of very frequent occurrence.

TREATMENT.—The treatment of these forms of heart disease has to be conducted on general principles; the indications have to be met as they present themselves. In all cases, we direct the patient to use the utmost precautions to prevent any undue excitation of the organ; quietude and time do more than medicine. It is important that the patient should be so placed that he can enjoy the best possible health. In obstruction, we find it useful to resort to the salts of Potassa and alteratives—to remove deposits, keeping the excretious free.

ARTERITIS.

The symptoms of disease of the arteries are very obscure, and it is doubtful whether it is possible to determine clearly during life. If confined to a single limb or portion of the

body, the symptoms are so like inflammation of the part that the two can not be distinguished. If, however, the disease results in obstruction of their canals, the tendency to sphacelus, manifested by the appearance of large bullæ, imperfect circulation of the blood, etc., with rigors and marked prostration, may lead us to suspect this condition.

The symptoms of general arteritis, according to Copland, are: rigors, followed by fever, great anxiety, irritability, restlessness, uneasiness, a sensation of burning heat, remarkable pulsation, with increased sensibility in the course of the large arteries. The patient complains of marked throbbing throughout the system, the surface is hot, tumid and injected; the tongue red, its papillæ erect, and base loaded; the bowels are costive; thirst urgent; urine scanty, high-colored and scalding. The pulse is strong, throbbing, full and frequent; and there is sometimes paroxysms of cough and dyspnœa.

In the second stage of the disease the pulse becomes very frequent, wiry, weak and irregular. There are palpitations, anxiety, and severe paroxysms of dyspnœa; the tongue is coated with a dark fur, and sordes appear on the teeth; the countenance shrinks, and is pallid and haggard, or towards the last becomes bloated, œdematous, and the lips purple. These symptoms increasing, hiccough, jaetitation and convulsions make their appearance, and the patient is soon woru out.

TREATMENT.—This disease, so rare in its occurrence, and diagnosed with such difficulty, has had no definite treatment laid down, as yet. In the first case, of local arteritis, the use of warm sedative or narcotic fomentations, in the first stage of the disease, with the internal use of sedatives, an alkaline diuretic, and hydragogue cathartic, would seem to be advisable. Where, however, the symptoms pointed to loss of vitality, the internal administration of Tincture of Muriate of Iron, with tonics and stimulants, and the local application of the first named agent diluted, or a dilute solution of Sulphate of Zinc would be appropriate.

In the general disease, in the first stage, the warm bath, at 90° to 100°, or the vapor bath, with the special sedatives as named under the head of fever, followed by Quinia, I should judge to be judicious. Possibly the wet sheet pack might be used with advantage. In the second stage, it does not seem that treatment would be of much advantage, but we might adopt that named for typhus fever.

ANEURISM.

The treatment of aneurism more properly belongs to the surgeon, and I only notice it here, as it affects internal parts, that are out of the reach of surgical aid, but require the assistance of the physician if for nothing but the palliation of the unpleasant symptoms.

NERVOUS PULSATION, SIMULATING ANEURISM.—This occurs chiefly in feeble, delicate persons, when there is much emaciation, and is usually associated with disease of parts immediately upon or adjacent to the spot where the pulsations occur. It is generally confined to the aorta, and more frequently appears in the epigastrium than at any other point. The sensation is extremely unpleasant, and the marked pulsation simulating aneurism calculated to very much alarm the patient. In addition to this the general health is usually impaired, so that the influence upon the nervous system is much more marked.

We determine the difference between this and an aneurism by the fact that the pulsation is jerking and sudden, and rarely diastolic, like an aneurismal tumor, but strikes upward as the patient lies on the back, and if diastolic not to an extent greater than the caliber of the artery. It is not a circumscribed, but rather an elongated pulsation, sometimes occupying the whole line of vessel; and in many cases it differs from the throbbings of an aneurism in this, that its intensity increases from above downwards, and has its maximum at the umbilical region, and that its force and character are continually varying.

The *causes* of this pulsation, according to Dr. Mott, are: enlargement or disease of the pancreas, scirrus of the stomach, particularly of its pyloric orifice, tumors at the foot of the mesentery, nervous irritation, enlargement of the vena cava inferior, increased solidity of the lungs, enlargement of the heart, particularly a dilatation of its right side, adhesion of the pericardium of the heart.

TREATMENT.—The treatment adapted to these cases should be such as would improve the quantity and quality of the blood, and restore the nervous system to its normal condition. The bitter tonics, especially such as remove irritation of the mucous surfaces, as the preparations of Hydrastis, Cornus, Populus, etc., with Carbonate of Iron, are advantageous.

Hydroeyanie Acid, or, what is better, the infusion of Peach Bark, heretofore named, is an admirable agent in cases where the disease is located at the epigastrium, and the stomach is irritable, as is also the *Collinsonia*, *Ptelea*, and *Euonymus*. If there is undue excitation of the pulse, *R*, Ferrocyanuret of Potassa, 3j; Tincture Aconite, gtt. xx; Aqua, 3iv; M., and administer in doses of a teaspoonful every three or four hours.

If there is irritation of the spinal cord, marked by tenderness, the irritating plaster or other means of counter-irritation should be used until it is removed. Any disease of parts adjacent to or connected by sympathy with the region of pulsation, should be appropriately treated. A daily bath suitable to the case should be employed, as a normal action of the skin is very beneficial in these cases; regular exercise in the open air should be taken, and a light but nutritious diet recommended.

THORACIC ANEURISM.

This occurs far more frequently at the arch of the aorta than in any other part. It presents varied symptoms in different persons, sometimes giving rise to severe suffering, at others occasioning but very little. The rapidity of growth varies very greatly, in some cases running its course in a few weeks, again lasting for years. At first, it gives rise to but little disturbance, but as it increases in size, the pressure on adjacent parts causes unpleasant and sometimes very severe symptoms. Usually the respiratory apparatus is most affected, and more or less difficulty of breathing is experienced; this is very great in some cases where the pressure is against the trachea. As the tumor enlarges, it forces the lungs to one side, and makes its appearance under the thoracic wall; gradually the pressure causes absorption, and it becomes very apparent; and it may continue until it forms a long, external, pulsating tumor. Being situate further back, it causes more disturbance, and is more difficult of diagnosis. It is in these cases that we have such extensive absorption of soft parts, and of the bodies of the vertebra.

DIAGNOSIS.—This is formed from the general symptoms, which indicate the seat of the disturbance, and from auscultation and percussion. In those cases in which the tumor makes its appearance anteriorly, the diagnosis is easy, and these are the only cases in which it is so. In others, if in front, we find

dullness, on percussio, and in any case a deep, double sound, louder than a bellows murmur, and of a rasping character. If the ear applied to the back detects an abrupt rasping sound, synchronous with the pulse, there is aneurism.

ANEURISM OF THE ABDOMINAL AORTA.

This is usually not difficult to determine, though it is sometimes very obscure. According to Copland, it is attended with acute pain, occasionally shooting into either hypochondria, and downwards into the thighs and scrotum. It is often exacerbated into violent paroxysms, being dull and fixed at intervals; it is aggravated by constipation, changes of position, and pressure on the loins. The patient often complains of severe fits of colic, accompanied with spasms of the abdominal muscles, and occasionally nausea and irritation of the stomach. Constipation is always present. The physical signs are the same as heretofore named, the purring thrill, pulsation, and harsh, bellows sound, synchronous with the heart's action.

TREATMENT.—A rational treatment of these cases would be such as would insure the greatest quiet of the circulation, and at the same time keep the blood rich in the elements of nutrition. Strict quietude of mind and body should be insisted on, though in the earlier stage of the affection moderate exercise by walking in the open air should be recommended. A light, nutritious and easily digested diet, avoiding stimulants of all kinds, is necessary. Spontaneous cure takes place by continual deposition of coagulable lymph, and fibrinous coagula in the aneurismal sac; if the vital energies are taxed, or the circulation is disturbed, this can not occur.

When the circulation has too much force, or is too rapid from the irritation, the judicious use of small doses of Tincture of Veratrum or Digitalis proves advantageous. If neuralgic pains supervene, Extract Conii with Tincture of Macrotys is useful. Local pain may be relieved by the Chloroform and Aconite Lotion applied to the part. In abdominal aneurism the bowels should be kept in a soluble condition, and the pain relieved by the administration of the milder narcotics. In two cases that have come under my notice (both epigastric) more relief was given by the application of the irritating plaster, continued so as to produce gentle counter-irritation, than by any other means.

PHLEBITIS.

Inflammation of the veins is of much more frequent occurrence than of the arteries; it is likewise marked by tolerably prominent symptoms. It is caused by wounds, injuries, local inflammation, disease of the bones or affections of the skin, giving rise to the formation of pus. It is of quite frequent occurrence as an element of puerperal fever, but excluding these cases the male is much more liable to it than the female.

SYMPTOMS.—Where the superficial veins are affected, the symptoms are very manifest, but not so distinct when the deep-seated are affected. It usually commences with a severe, sharp pain along the course of the vein or veins, which if superficial will become hard and tense, seeming under the skin like a hard, knotted cord. At the same time the skin presents a reddish line along the course of the disease, which sometimes changes to purple. Congestion and hardening of the adjacent parts take place, and if one or more large trunks are affected, the parts become œdematous and very much swollen.

The constitution sympathizes more or less with the disease; usually there is a chill—sometimes a marked rigor at the commencement—followed by fever of a remittent type. All the secretions are deranged; there is loss of appetite, headache, and considerable prostration. If promptly treated, in favorable conditions of the system, the disease goes no further, the coagula formed in the veins become organized; a collateral circulation is established and the inflammation ceases. In other cases the vein secretes pus, and pus is formed in the adjacent deposit, the result being the formation of an abscess. Or the vein secreting pus, the purulent matter is carried into the general circulation, the system becomes infected, and we have the low form of fever and other results, which will be noticed hereafter, under the head of pyæmia.

DIAGNOSIS.—Phlebitis of superficial veins may be readily diagnosed by the cord-like hardness in the course of the vein, redness of the surface, and pain and tenderness on pressure. Of the deep-seated veins we can not judge so readily, though the presence of symptoms of inflammation for a considerable distance and not affecting the tissues generally will be pretty good evidence.

PROGNOSIS.—The prognosis is not unfavorable, unless the

blood has been changed by some previous disease, so as to predispose to the formation of pus, when it becomes one of the most fatal affections known.

TREATMENT.—Prompt treatment saves a great amount of trouble in these cases, and renders the occurrence of the suppurative stage less liable to result. If symptoms of severe constitutional disturbance are present, the administration of a thorough emetic is advisable, to be followed by diaphoretics and diuretics. If the bowels are constipated, a mild cathartic of Podophyllin and Leptandrin may be given, but if there is tendency to diarrhœa give the Neutralizing Cordial in sufficient quantity to move the bowels once or twice, and then in small doses to check them.

After the use of the emetic, Quinia to the amount of from eight to fifteen grains, should be given daily in the period of greatest intermission. Brandy, Wine, and especially malt liquors, are useful in cases where there is much prostration, and may be given in quantities sufficient to produce the necessary stimulation.

As regards local applications there is some dispute. Some recommend warm applications, others cold; some stimulant, others sedative; so that the reader would have difficulty in making up his mind what would be proper. Of one thing we are certain, and that is, if there is the slightest evidence of accumulation of pus in the part from which the vein comes, let it out, by a free incision. If a wound, it must be reopened; if from fractures, the incision should reach the bone; if in amputation, any part that seems baggy should be incised; in these cases, the free use of the knife is oft-times better than any medicine. If the inflammation is of the superficial veins, the application of the Tincture of Muriate of Iron with a camel's-hair pencil the entire length of the vein, has with me answered a better purpose than any other means; I employ it freely and three or four times a day. Two or three thicknesses of soft cotton cloth may then be wet with Tincture of Aconite, 3j; Tincture of Arnica, 3ij; Fluid Extract of Belladonna, 3ss; and laid over the course of the vein. Where the disease is deep-seated, the application of Vinegar cold, is probably as good as anything, unless the pain is severe, when I would recommend a poultice made of a decoction of Cornus Florida and Wheat bran.

I am inclined to believe that the Muriated Tincture of Iron

exerts a specific influence in this disease, and in the few cases that have come under my notice have given it in doses of twenty or thirty drops every four hours.

PYÆMIA.

This is the second or suppurative stage of phlebitis, in which pus being formed in the veins is carried into the circulation and induces the severe symptoms below named. The pathology of the disease is not definitely settled, much discrepancy of opinion having existed. Four theories are named as accounting for the phenomena. 1st, That it is owing to the admixture of the pus with blood, the pus-cells being larger than those of the red globules are arrested by the minute capillaries, and give rise to secondary abscess. 2d, That it depends upon the property of pus to coagulate the blood, which occurring occludes the capillaries of a part, and thus gives rise to abscess. 3d, That it is owing to some irritant body, which inducing capillary phlebitis, gives rise to the secondary supuration. 4th, That it is caused by a peculiar poison which contaminates the system.

If we examine the cases of this disease closely, we find that in all there was unmistakable phlebitis, running or tending to the production of pus, and the inference is natural, that this is the cause of the mischief. That it does not affect the system, as in the first proposition, is proven by the fact that the white globules of the blood are as large as pus-cells, and can with difficulty be determined from them; and yet these readily pass the rounds of the circulation. That the second proposition is not a true explanation, is proven by the fact that pus does not coagulate the blood in living vessels, though it quickens it when drawn. In answer to the third, it is claimed and proven that normal pus is one of the most bland and innocuous of animal fluids, and by direct experiment that no such results follow its introduction into the blood vessels. The fourth proposition is defensible from the fact that we know that animal matter undergoes changes which render it eminently poisonous, as exemplified by variolus pus, the matter of glanders, certain septic changes in decomposing animal matter, which render it peculiarly dangerous, as malignant pustule, certain dissecting wounds, etc. We can not account for the

production of this poisonous pus at one time and the bland innocuous fluid at another; neither can we always distinguish between them, any more than we can account for the production of small pox, or vaccine virus, or distinguish between them.

SYMPTOMS.—Though pyæmia may result from the phlebitis, as heretofore described, yet in a majority of cases the severe symptoms are manifested at the commencement. The forming stage is generally very short, usually not more than twenty-four hours, during which the patient feels languid, and if from an injury or operation, complains of severe pain in the part. A violent chill or rigor now occurs, lasting from fifteen minutes to one or two hours, succeeded by violent reaction, and this by profuse perspiration. The rigor happens sometimes several times a day, at others but once, and occasionally none after the first one.

The symptoms are always severe when the disease is once established; the pulse is small, frequent and feeble; the mouth clammy, and the tongue covered with a dirty, brownish coat; the stomach is irritable, and nausea with vomiting occurs from slight causes; the bowels are irregular, the evacuations being dark and very offensive; the urine is high-colored, scanty and fœtid; the extremities are cool; the trunk hot and pungent; the mind wanders, and the patient has little command over the voluntary muscles; there is tenderness of the entire body, and sometimes excruciating pains in internal organs and joints. These symptoms increase day by day, bearing a marked analogy to the severest cases of typhoid fever.

Sooner or later in the disease the poison seems to localize itself by lighting up an inflammation of the lungs or other viscera, of the joints, and of various soft parts. These inflammations run a rapid course, and always terminate in suppuration, sometimes several parts being affected at the same time, or innumerable small abscesses form in various parts of the body.

DIAGNOSIS.—The symptoms above named are sufficient to establish the diagnosis. The only disease with which it could be confounded would be intermittent or remittent fever, on account of its marked periodicity; but under no circumstances need this be the case if we reflect that these diseases never present such aggravated symptoms.

PROGNOSIS.—The prognosis is very unfavorable, though some few will recover; the duration of the disease is from four to twelve days, usually terminating fatally within the first week.

TREATMENT.—To remove the exciting cause, prevent decomposition of the blood, and support the system, are the obvious indications. The first may be accomplished in some degree, by giving a free exit to purulent accumulations; and in this, as in cases of absorption from an open suppurating surface, the use of means to change the condition of the parts, destroy the elements of decomposition, and favor normal pus formation. For this absolute cleanliness is imperative, and the use of a lotion of Chlorinated Soda or solution of Sulphate of Zinc. If an external phlebitis exists, penciling the part with the Muriated Tincture of Iron is beneficial.

No means are so important in preventing rapid changes in the blood, as those that check these violent disturbances of the circulation. For this purpose, ten grains of Quinia with an ounce of Brandy at the commencement of the intermission, and repeated if necessary, is the most efficient means. A solution of the Chlorate of Potash with Hydrochlorate of Ammonia taken freely, with the internal administration of the Tincture of Muriate of Iron in doses of twenty or thirty drops every three or four hours will complete the treatment in many cases. If there is much pain so that the patient is rendered uneasy, and can not obtain rest, I should have no hesitation in giving full doses of Opium.

Irritation of the stomach must be especially guarded against; if severe at first, and accompanied with retchings and vomiting, a thorough emetic is advisable; if not so severe, it may be arrested by sinapisms to the epigastrium, and the use of an infusion of Peach bark. Animal broths and milk should be administered as freely as the stomach will bear them, and stimulants employed as may be necessary. The frequent use of the bath, alkaline to the trunk, stimulant to the extremities if there is coldness, is a very useful adjuvant to the treatment.

If evidence of local determinations to internal organs should arise, dry cupping should be resorted to, and followed by stimulant applications; in some cases a blister would answer a good purpose. In addition, it is highly essential that

normal circulation to the extremities and surface should be obtained if possible. If the joints are affected, they should be painted with the Tincture of Muriate of Iron, and poulticed with the decoction of Cornus and Wheat bran before named; the same treatment is applicable to other external parts. When pus forms, it is good practice to give it exit by a free incision at the most depending portion, and promote free drainage.

EMBOLISMUS.

Obstruction of blood vessels by *emboli*, or clots or fibrinous vegetations, has been noticed and studied of late years. Magendie, Cruvielheir and Gaspard have shown by experiment that foreign solid bodies floating in the blood, would obstruct the smaller blood vessels, and occasion inflammation and exudation. Virchow and others have reported cases in which coagula and fibrinous vegetations have been carried from the point where formed, as in the heart or varicose veins, to other and distant parts, causing an arrest of circulation and fatal disease. In some cases, the obstruction being of the larger and important blood vessels, death has occurred in a short time after the first symptoms or was immediate. Thus, M. Briquet reports a case in which the coagulum was carried from varicose veins of the leg (the saphena being inflamed) to the pulmonary artery. The symptoms were as follows: "After an excellent night she was seized by an undefinable sensation, and uttered a cry of alarm. She was found to be extremely pale, her features having undergone marked change. Her arms were convulsively moved, she complained of intense pain in the chest, and in a state of alarm declared she would be suffocated. The pulse was filiform, the heart beat tumultuously, but without abnormal sound, and she died at the end of twenty minutes." Post-mortem examination detected the existence of large clots in the saphenous vein, and an obstruction in the pulmonary artery, extending from the valves to its arch, formed by a clot.

Instances of the obstruction of the femoral, axillary and carotid arteries are named, in which sudden and alarming symptoms were produced, and other cases in which obliteration of the vessel occurred, the patient living for some time. It is

supposed by Virchow that obstruction of the smaller vessels of the brain by fibrinous vegetations from the heart will account for many cases of sudden death from disease of this organ; and also for cases of gangrene without any appreciable cause. The symptoms are of course variable, and the only evidence of emboli that we have, probably, is the absence of pulsation below the obstruction. I have noticed embolismus here, not for the purpose of giving a treatment, which can not be done, but for placing the facts above noticed as a guide to diagnosis in certain obscure cases.

SCROFULA.

Scrofula or king's evil is one of the most common diseases the physician has to treat; and manifesting itself in so many different forms, its symptoms are protean, and its treatment varied and difficult. It is undoubtedly a disease of the blood, though the secretions and nervous system are markedly affected. Copland remarks that "The blood in scrofula and tubercles has been long considered popularly, and with much truth, to be of a poorer quality than in healthy constitutions." Simon, states that the blood is deficient in solid constituents, especially in fibrin and in corpuscles. According to Dubois, the blood of scrofulous subjects coagulates slowly, the clot is small, soft, and diffuent; the serum is thin, and often of a reddish color. Under the microscope, some of the corpuscles appear devoid of color at the edges only, some entirely colorless. Their size is not materially changed, but they appear flattened, spherical, or cylindrical. Hence he infers that there is a deficiency of the salts in the blood of scrofulous persons. Mr. Phillips remarks that, in every case in which he examined the blood of scrofulous subjects, the coagulum was relatively small, the serum large, the clot unusually soft, almost diffuent; in a few instances only, it was tolerably firm. In most cases the proportion of globules was considerably under the healthy standard. The fibrin had not generally undergone much change. The causes of scrofula, whether those acting on the parent, or the individual himself at a very early age, or even at later periods, whether external or internal, whether hereditary, congenital, or acquired, have all a similar tendency, namely, directly to depress, or to exhaust organic nervous, or

vital power; and thereby to impair vital resistance, to prevent the processes of repair consequent upon morbid vascular action, and to arrest the formative or organizing tendency of the exudations produced by this action. Not only is there a disposition to a dyscrasia—to a solution of vital cohesion, observable in parts near the seat of scrofulosis, but there is also an absence of the formative effort in the fluids exuded by morbid actions in scrofulous constitutions. The state of vital power or endowment in the several tissues or organs of scrofulous persons, appears insufficient both for the healthy or sthenic actions or functions these parts should perform, and for the organization of the fluids or matters effused from their vessels. Hence the changes which the exuded matters undergo neither favor nor are followed by organization, even in its lowest grades; and most probably, the fluid itself is exuded from the capillaries of a kind and in a state which indisposes it to organization.

Scrofula is said to be hereditary, and so it is in this, that the child inherits a defective vitality, which manifests itself in imperfect elaboration of the blood, and enfeebled vitality of tissues and organs. Such persons may live for years without any manifestation of the disease, simply because there has been no cause acting to further depress vitality, or determine scrofulous deposit. Finally, however, from arrest of secretion or other cause, the system is depressed, and an irritation of some part being set up at the same time, we have full manifestation of the disease.

If we have correctly stated the pathology of the disease, what measures may be adopted to remove this predisposition? Some contend that it can not be removed, but we have evidence sufficient to show that it can be entirely eradicated. To accomplish this we resort principally to hygienic measures, such as will stimulate healthy digestion, secretion, and innervation. Remove the child to the country, let it have plenty of out-door exercise with accompanying light and sunshine, give it nutritious food and eschew condiments, pastry, and sweet-meats, and the entire constitution of the child will undergo a change.

Scrofula manifests itself in various ways; very frequently the deposit commences in the lymphatic glands; sometimes in the viscera, as of the lungs, liver, brain, etc.; again in the bones, in the muscles, in the skin, in fact in all the tissues of

the body. The determining cause of the deposit is undoubtedly an irritation of the part causing determination of blood.

SYMPTOMS.—The symptoms of a serofulous constitution are not well-marked, though it has been frequently described as if it were. It is true that it occurs most frequently in children of fair skin, blue eyes, light hair, and regular features; but it is so often met with in persons of dark skin, hair and eyes, irregular features, and rough development, that it is impossible to say by a child's appearance whether it is serofulous or not. There is, however, in very many cases, such manifest imperfections in assimilation, circulation, and nutrition, and feeble vitality, that we are enabled to recognize the serofulous constitution. Usually, the previous history of the family will throw some light on the matter; but, as Prof. Powell has well demonstrated, the serofulous constitution may be and is often developed in children by incompatibility of the parents.

Scrofula manifests itself when, from any cause, the vitality of the system is so depressed that the blood is not properly elaborated, or the detritus of the system is not removed, either by an imperfection in the process of retrograde metamorphosis, or by failure of the excretory organs. The situation is determined in all cases by the existence of a local irritation or inflammation in or adjacent to the parts affected. Thus, we observe serofulous deposit, and disease of the cervical lymphatic glands, from disease or irritation of the mouth or throat; involvement of the axillary glands, from disease of the arm or breast; of the inguinal glands, from disease of the lower extremity, or genital organs; of the mesenteric glands, from disease of the bowels; of the lungs, from irritation produced by cold; and in the muscles and bones from the same causes. It might be divided into two forms, as it occurs in the lymphatic glands, or as a deposit in the form of tubercles in the structure of a part, but no practical benefit would grow out of such distinction. As we have in other places described serofulous or tubercular affections of the principal organs, we will confine ourselves here to a description of it as it affects the lymphatic glands.

In many cases the irritation giving rise to the development of scrofula is very manifest, and occasionally demands treatment, but in others it is very slight. The superficial lymphatic glands are then observed to become slightly enlarged

and hard, so as to be very perceptible when the finger is passed over them. This occurs frequently in serofulous children in the superficial cervical glands, without further development, and is considered by many as the best indication of a serofulous constitution. When the disease is fully commenced, one or more of the glands continue to enlarge, a low form of inflammation sets in, and deposit takes place in the adjacent tissues, which become swollen and hard. Now the inflammation becomes more or less acute, the part is reddened, painful, hot, tender on pressure, and the swelling increases rapidly. Continuing in this way for a longer or shorter time, suppuration commences, and the deposit is gradually changed into pus, which in time makes its way to the surface, and is discharged. This occupies a variable period of time, sometimes passing through all its stages in eight or ten days, and at others occupies as many weeks. In some cases the inflammation is acute and the pain severe, but in others it progresses without much redness, heat, or pain.

The pus forms slowly in many cases, and there is but little tendency to its discharge, and in others weeks pass over, the part still continuing hard; and at last, when our patience is nearly exhausted, suppuration occurs rapidly. Sometimes the pus is well formed and healthy, and when discharged, the part heals readily; but at others it is watery, of a greenish-brown color, or clear, with more or less flocculent material mixed with it. Occasionally the abscess exhibits no tendency to point, but the pus burrows in the tissues for a long time, unless it is opened. In other cases, when the pus is discharged the abscess does not heal, but continues to discharge a dirty, flocculent pus; and if we examine it, we will find the walls ragged, and often a chain of lymphatic glands dissected out, and lying at the bottom.

The constitutional disturbance varies greatly. Sometimes there is quite brisk febrile action when inflammation first comes up, with loss of appetite, arrest of secretion, and much prostration. In these cases, suppuration is frequently marked with a chill or rigor, and occasionally attended with hectic fever and night sweats. In other cases, there is no constitutional disturbance further than loss of strength, and some derangement of secretion, languor, and a peculiar pallid appearance of the surface.

DIAGNOSIS.—Serofulous enlargement is readily recognized

from its situation, and from the attendant symptoms above named.

PROGNOSIS.—In very many cases the prognosis will be favorable, as the tendency to the disease is not so strong, but that it may be removed by appropriate treatment, and measures calculated to improve the general health. There is no doubt but that by proper care the constitution of a child can be so entirely changed, in the course of time, that the tendency to this disease will be entirely removed. There are other cases, however, in which, though we may get the patient safely through the present attack, they will inevitably die, sooner or later, of this or some analogous affection.

TREATMENT.—When children are predisposed to scrofula, a judicious hygienic plan should be adopted to strengthen the constitution, by improving the functions of digestion, assimilation and nutrition. Such children are said to be tender, and hence they are kept in the house a considerable part of the time for fear of colds and sickness, and being weakly they are petted, and their appetites pampered; and not spending their time in play, as they should do, their minds are precociously developed at the expense of their bodies. Instead of this, such children should be accustomed to the open air from an early age. As with plants, the human species can not be robust and stout without fresh air and sunshine. As soon as they commence walking they should play in the open air whenever the weather is suitable. In this way, the constitution is strengthened, and the liability to colds by alternations of temperature much reduced. Sleeping-rooms should in all cases be large, well-ventilated, and exposed to the direct rays of the sun during some portions of the day. Up to the age of eight or ten years, the child's occupation should be out of doors, and whether it was play or work, it should be of such a character as to bring into action all the muscles of the body. Before this age the child should not be required to study, neither should it be sent to school, there being sufficient time after this for all laudable educational purposes. Regular meals of good, hearty food, with fruits in their season, with a sedulous avoidance of all cakes, sweetmeats, etc., are of the highest importance. An observance of these rules, the children being raised in the country, will almost invariably result in a complete change of constitution, and such increased vitality that not only is the predisposition to this disease removed, but

the child becomes a vigorous, hearty man or woman, instead of dropping into a premature grave from phthisis or some kindred affection.

In the treatment of the disease, the indications are to, 1st, improve the quality of the blood and raise it above the point at which scrofulous material is effused, and, 2d, to promote the absorption and elimination of such material as may have been deposited. To accomplish these indications various means are resorted to, according to the condition of the patient. Alteratives are relied upon to a very great extent, and various agents of this class are employed. By some the Compound Syrup of Stillingia and Iodide of Potassium are considered the preferable agents, and are used to a very great extent. My experience has not been favorable to these remedies, and I have been compelled to select others. I now use the *Rumex Crispus*, *Alnus Serrulata*, *Scrophularia*, *Pedophyllum*, *Corydalis*, and some two or three other agents, sometimes singly, or two or three combined to suit the indications of the case. Acetate of Potassa is my main dependence to promote absorption and elimination by the kidneys. I believe it to be as much more efficient than Iodide of Potassium, as this is over Epsom Salts; at the same time employing the bitter tonics, Iron, the Hypophosphites, and Cod-liver Oil.

Very much depends upon getting proper action of the three principal emunctories—the skin, kidneys and bowels. Great care is necessary, however, in the severer cases, not to overstimulate and exhaust these organs. To restore the secretion of the skin, I employ—if it is dry and husky—oleaginous frictions, followed by thorough washing with Castile soap and water; if soft, relaxed and flabby, I use the bitter tonic baths; if there is deficient capillary circulation, with coldness of the extremities, a sponge-bath of dilute Tincture of Capsicum.

As a local application to promote resolution, I have used equal parts of Tinctures of Belladonna and Stramonium, and Glycerine, or if there is much fever, an equal part of Tincture of Aconite. In other cases, a wash of equal parts of Tincture of Muriate of Iron and Glycerine may be used, or the part may be painted with the Iron, and then followed by the lotion named. In some cases we obtain good results from the use of the Mayer's Ointment or the black salve; finely pulverized Indian Turnip, made into a poultice, is an excellent application. If there is much heat and redness, we may use

fomentations of Stramonium leaves, or a poultice of a decoction of Cornus and Wheat-bran. If it is seen that resolution can not be effected, we will employ poultices to facilitate suppuration, and if pus has formed to any extent, instead of permitting it to burrow, we will immediately open the abscess. The poultice may be continued for a few days longer, until the inflammation has passed off, when it may be dressed with Mayer's Ointment, or other stimulant application, until it heals. If it does not discharge well, and looks ragged, it will be best to use a solution of Sesquicarbonate of Potassa until suppuration becomes free. And in those cases in which the healing process is slow and the discharge thin and watery, it may also be employed with advantage.

In some cases the healing process progresses until the abscess is nearly closed, but a red, ugly cicatrix is left, from which there is more or less oozing; or if it closes, it breaks out frequently, and after running for a few days again closes, with a thin, bluish cicatrix. These cases are remarkably tedious, and are very difficult to cure. I have treated them by employing the Zinc paste to entirely destroy the morbid cicatrix, and then healing with some mild, stimulating ointment; or, instead of this, we may sometimes dissect the cicatrix out, and draw the parts together with adhesive straps. In other cases, we will find that a decoction of equal parts of Cornus, Rumex and Alnus, continually applied, and taken internally, will in time overcome the disease.

DROPSY.

It is very difficult to decide under what head dropsy should be placed; but as it is now generally conceded that in many, if not a majority of cases, it is dependent upon some lesion of the blood, it may properly come in at the close of this chapter. We have already noticed some forms of local dropsy in other parts of this work, and we will here confine ourselves to a general description of the disease.

Dropsy may be first divided into *idiopathic* and *symptomatic*, as it arises from disease of the blood, or from some local disease or change of function. In the first case it is either *active* or *passive*; *i. e.*, active, as caused by active congestion, determination of blood, or inflammation, as is witnessed in hydrothorax, from disease of the pleura, ascites from disease of the peritoneum, and of the cellular tissue as the result of erup-

tive fevers; or passive as the result of debility, impoverished condition of the blood, feeble circulation, and relaxation of the tissues. Symptomatic dropsy results from lesion of some part or organ, which interferes with the free circulation of the blood, as is seen in heart disease, granular disease of the kidneys, and some affections of the liver.

SYMPTOMS.—*Active* and *sthenic* dropsy usually occurs as a sequel of fevers or inflammations, or comes up during their progress. It is of frequent occurrence after scarlatina, and some affections of the viscera, and as dropsy of the serous cavities is associated with determination or sub-acute inflammation of the serous membranes. It may result from sudden arrest of the secretions of the skin and kidneys, the dropsy making its appearance with great rapidity. In these cases we will find the skin dry and harsh, the urine scanty and frequently acrid and scalding, the bowels constipated, the tongue coated, appetite gone, headache, and a hard, resisting pulse, increased in frequency some ten or fifteen beats per minute. These symptoms sometimes continue until the dropsy is fully developed, and then disappear, but at others they continue in an intermittent form throughout the entire disease. The dropsical effusion may be in the cellular tissue, or in one or more of the serous cavities, or it may affect both. Its duration is very variable, and it will sometimes pass off without assistance, though at others it is very stubborn.

Passive or *asthenic* dropsy occurs as the result of local or general debility, and especially of some change in the condition of the blood. Dr. Copland remarks, that "In its primary form it may be attributed chiefly to relaxation of the exhaling pores, and of the serous and cellular tissues, and to increased tenuity or alterations of the blood, independently of any considerable structural change. It is sometimes caused by excessive sanguineous evacuations, or exhausting discharges; by the suppression of secretions, and by a deficient, watery, vegetable and unwholesome diet. The dropsy that sometimes prevails amongst the poor in times of scarcity is generally of this kind. It is usually characterized by a weak, unequal, small and frequent pulse, paleness of the lips, tongue and gums, flaccidity of the muscles, anhelation on slight exertion, feebleness of the joints, swellings of the lower limbs, or anasarca attending or preceding, or attending the effusion into the cavities of the trunk; an unhealthy appearance of the

cutaneous surface, and absence of those symptoms which indicate the existence of visceral obstruction or disorganization."

Dropsy from *disease of the heart* is usually preceded by such evident symptoms of disturbance of the circulation that it is difficult to mistake it. The patient has had a sense of weight and pain in the præcordia, with palpitation or sense of oppression and faintness on taking active exercise, and other evidences of heart disease. It usually comes on slowly, making its appearance first as a puffiness of the face, hands and feet; the first in the morning on rising, the second in the evening. The effusion occurs in the chest and abdomen most frequently and only occasionally as an anasarca. With the appearance of the dropsical effusion we find that the patient loses strength rapidly, the symptoms of disease of the heart increase, there is a feeling of weight in the præcordia, and it is impossible for the patient to sleep unless the head and shoulders are well raised; and in some cases it is impossible for them to lay in bed, either night or day.

Dropsy not unfrequently has its origin in disease of the *liver, stomach and spleen*, though we can not see any connection other than the effect that long-continued disease of these organs would have upon the blood. The dropsy that follows severe and protracted intermittent fever is almost invariably associated with disease of the spleen and liver, and proper treatment directed to those organs is indispensable to success. Among the most inveterate cases of dropsy are those that are associated with long-continued dyspepsia. In some cases, the *ascites* seems to result from obstruction to the passage of the portal blood through the liver, and is removed by measures that will stimulate this viscus to action, and thus permit free circulation.

We have, in another place, noticed that albuminuria or Bright's disease of the kidneys, almost invariably produced dropsy by depriving the blood of a portion of its albumen, and thus destroying its plasticity and power to pass freely through the capillaries. Some writers contend that the kidneys are thus in fault in all cases of dropsy though the disease spoken of may not exist. If this were so, however, we would always find albumen in the urine on examination, whilst we know that in very many cases, it is absent before or during the progress of the disease.

Dropsical effusion occurs in the cellular tissue, taking the

name of *anasarca*; in the cavity of the peritoneum, *ascites*; in the pleural cavity, hydro-thorax; in the pericardium, hydro-pericardium; in the cavity of the arachnoid, hydro-cephalus; in the tunica-vaginalis, hydrocele; and in the synovial membranes, hydrarthrosis.

In *anasarca*, the effusion is in the delicate net work of the cellular tissue, and at first confined to the superficial fascia, though as the disease progresses, it affects the deep-seated areolar tissue as well. In chronic or passive dropsy it appears first in the feet, usually in the form of œdema, and gradually extends upward to the body. In acute or active dropsy, it frequently manifests itself first in swelling of the eyelids, face and upper parts of the body. Frequently the lower half of the body is the principal seat of the disease, the upper extremities, face and trunk, being but slightly affected. The amount of effusion varies greatly, sometimes being comparatively slight, the parts being swollen and pitting on pressure, and at others being distended until the skin seems smooth and glistening and ready to burst. The parts are usually cool and to some extent numb, there being a feeble circulation of blood in them and occasionally the distension becomes so great that the skin is ruptured or ulcerated and the fluid oozes out.

Ascites or dropsy of the abdomen, occurs more frequently than any other form but *anasarca*. The symptoms are the same as are common to dropsy in general, with the addition of the feelings of unpleasant weight and distension of the abdomen. The diagnosis is usually not difficult, the regularity of the enlargement, dullness on percussion over the most dependent portion, and resonance over the superior part, with the distinct succussion on palpation are prominent signs.

As heretofore noticed, *hydro-thorax* is attended with difficult and oppressed respiration, proportionate to the extent of the effusion. There is marked dullness on percussion over the most dependent part of the chest, which is changed by change in the patient's position; that peculiar sound termed *agophony* is developed; the intercostal depressions are effaced; and we frequently have the evidence of succussion.

Hydro-pericardium is with difficulty distinguished from hydro-thorax, though when connected with this the situations of the dullness, and its confinement to one spot, though the position of the body be changed, is the best evidence. It is usually connected with disturbance of the action of the heart,

and the patient can not in many cases remain in the recumbent position for any length of time.

DIAGNOSIS.—The diagnosis of anasarca is usually easy, as the enlargement is marked, and physical examination shows it to result from accumulations of water. The diagnosis of dropsy of the cavities is more difficult, but attention to the points above mentioned, and those laid down in the description of the diseases of the organs named will suffice for their distinction.

PROGNOSIS.—In active dropsy the prognosis is usually favorable, except in dropsy of the pericardium which is always unfavorable. In asthenic dropsy, our prognosis will depend to a very great extent upon the causes of the attack, and the general health of the patient. Where dropsy is symptomatic, it will of course depend upon the character of the disease producing it: thus dropsy from disease of the heart, or Bright's disease of the kidney will be looked upon unfavorably; but if from temporary change of function of the kidney, liver, spleen, etc., we would expect a speedy cure.

TREATMENT.—In active dropsy I commence the treatment by the use of the special sedatives, as *R*, Tincture of Aconite, Tincture of Veratrum, $\bar{a}\bar{a}$, $\bar{f}\bar{3}\bar{s}\bar{s}$; Essl. Tincture of Asclepias, $\bar{f}\bar{3}\bar{j}$; Aqua, $\bar{f}\bar{3}\bar{i}\bar{i}\bar{j}$; *M.*; and give in doses of a teaspoonful every hour until the skin becomes slightly moist, and then every two or three hours, as circumstances may require. To assist this, I direct the use of the alkaline bath and hot foot bath, or, if it can be given, the general warm bath, or in severe cases the vapor bath. If there is considerable derangement of the stomach, as is sometimes the case, it will be well to give a thorough emetic, of the Compound Powder of Lobelia in infusion. If there is much irritability of the nervous system, we would associate with the remedies first named, the Macrotys and Gelseminum. As soon as the system has been brought under the influence of the remedies named, Quinia and Hydrastine should be given to the extent of four to six grains of each daily. This treatment is preparatory to means for the removal of the dropsical deposit, and though it may not be necessary in all cases, it is essential in very many.

Very generally we will find that secretion becomes better under the use of the above treatment, and if the dropsical deposit is not lessened, it has not increased. I do not deem it desirable in many cases to give a cathartic or diuretic until

the hardness of the pulse and constriction of the skin has been removed, which usually occupies from one to three days. Now, we administer a hydragogue cathartic, and I know of none better for general use than the Compound Powder of Jalap and Senna, and Bitartrate of Potassa, in equal parts, giving one drachm every three or four hours, daily, until copious watery evacuations are produced. Instead of this, we may give Jalap, grs. xv; Bitartrate of Potassa, 3ss to 3j for a dose; or, Elaterium, grs. ij; Bitartrate of Potassa, 3iv; triturate thoroughly and divide into eight powders, one of which may be given every three or four hours until it acts briskly. The cathartic may be administered every day to the extent of producing two, three or four watery evacuations daily, unless it gives rise to irritation of the bowels or exhaustion. As soon as the bowels have been freely moved, and not before, we commence with diuretics to increase the evacuation of water by the kidneys. A very good eliminative, though not a pleasant one, is R, Acetate of Potassa, 3ss; Spts. *Ætheris Nitrici*, Tincture of Juniper, āā, f3j; Aqua, f3ii; M., and give a teaspoonful every two or three hours; or I sometimes employ an infusion of Hair-cap Moss or *Eupatorium Purpureum*. If there seems to be necessity for a stimulant, I know of nothing so good as the Gin Bitters taken freely.

In *asthenic* dropsy the treatment will have to be both evacuant and sustaining. If the tongue is coated, the breath bad, with failure of the appetite and imperfect digestion, I would strongly recommend that the treatment be commenced with an emetic, if there is nothing to contra-indicate it. An emetic sometimes so changes the action of the system, that remedies which previously had no influence now act well. Following this, we would put the patient on the use of the bitter tonics and Quinia, and as much stimulus as seems necessary to keep the strength up. Equal parts of Quinia and Hydrastine, or Essl. Tinctures of *Collinsonia*, *Cornus*, and *Ptelea*, with as much of the Gin Bitters as seems to agree with the patient, should be continuously given, and they may be changed for others, as occasion requires. They should be so employed, if possible, that the patient shall gain rather than lose strength during the treatment. Associated with these means, we would use tonic and stimulant baths to favor free circulation of blood to the surface, and especially to prevent congestion of internal organs. Now, we may employ

the hydragogue cathartics and diuretics to remove the water from the system, expecting that, as we thus deplete the blood-vessels, they will supply themselves from the dropsical effusion. Of course the patient must not be permitted to take as much fluid as is evacuated, for if so, our treatment will of course be unsuccessful. The formulas for cathartics and diuretics might be indefinitely increased, but as heretofore remarked, a few good remedies are better than a large number of poor ones. A reference to the appendix of the *Materia Medica* will furnish a variety of good combinations.

In dropsy from *heart disease* we would pursue the above plan of treatment, with the additional remedies demanded by the local disease. Dropsy from albuminuria has been already described, but its treatment does not materially differ from other forms, further than the limited use of diuretics, and the means demanded for the disease of the kidneys. Dropsy from disease of the spleen or liver, following intermittent fever, should be treated as named for protracted intermittent, with the addition of the hydragogue cathartics and diuretics. In ascites from disease of the liver, we will endeavor to promote its action, and facilitate the circulation of the blood through it. We occasionally find a case in which, from irritation of the bowels and kidneys, we can not use the common means recommended. In these cases I have obtained much advantage from the employment of Tannic Acid in doses of twenty grains four or five times a day, associated with such means as seem to be indicated by the condition of the system.

As regards the propriety of operative interference, there has been much dispute, some contending for it, others against it. In persistent cases of *anasarca*, I am satisfied that incisions into the cellular tissue, and followed by moderate compression with the roller, is sometimes attended with the best results. In *ascites*, tapping is frequently performed, but unless associated with proper treatment to restore tone to the exhalents, and to induce free secretion, it is only a temporary palliation. Tapping is rarely resorted to in *hydrothorax*, and only in cases in which the effusion is the result of inflammation of the pleuræ.

CHAPTER IV.

DISEASES OF THE DIGESTIVE APPARATUS.

This important class of diseases should be thoroughly studied, as some derangement of the digestive apparatus is met with in almost all forms of disease. To obtain a clear idea of the nature of these affections it is necessary to have a distinct knowledge of the organs which are the seat of them, and of the functions they perform. No animal function displays a greater diversity of means for its performance than that of digestion, and none plays a more important part in the economy, or has more extended sympathies; being the center from which all parts originally derive the material for nutrition, we can well understand why any change of function in these parts, if it continues, will eventuate in disease. The close sympathy existing between this and other portions of the body accounts for the general derangement that follows disease here, and the almost invariable functional derangement of this apparatus that exists during other diseases.

DERANGEMENTS OF DENTITION.

Dentition or teething is a physiological process, and not a disease, as many imagine. If the body is in a normal condition, and not warped to too great an extent by customs called civilized, then the process of cutting the deciduous teeth is painless and without unpleasant consequences. But if the converse, then the eruption of the teeth may be the source of irritation which will cause disease of various parts. We can readily see how this may be if we examine other parts: for instance, the function of sight is performed with pleasure and advantage to the eye, if in a healthy condition; but if diseased, it is sometimes the source of great irritation.

IRRITATION.—Occasionally we find that the gums become very tender, or the child is continually working with its

mouth, and desiring to bite something; it is irritable and fretful; there is some fever, increased heat of head, or sometimes pallor and dilatation of the pupils. It is true, that many times these symptoms will pass off without danger to the child; but often they do not, giving rise to a low form of fever, disease of the brain and convulsions, or derangement of the bowels.

The *treatment* of this condition is comprised in a mild sedative as Tincture of Aconite gtt. xx, to Aqua ℥iv, in doses of a teaspoonful every hour or two; and if the child is nervous, and exhibits evidences of convulsion, the addition of Tincture of Gelsemium ʒj to ʒij, for a child one year old. If the bowels are constipated, a dose of Castor Oil, or Compound Powder of Jalap and Senna in infusion is indicated, and the general bath and hot foot-bath should not be neglected. If there is diarrhœa, it should not be suddenly checked, but the Neutralizing Cordial, or Compound Powder of Rhubarb in infusion, administered until it produces one operation, and afterwards in smaller doses; or the infusion of Epilobium may be used.

CONGESTION.—The irritation occasionally causes determination of blood, and the gums become swollen and tender to the touch; there is fever, marked irritation of the nervous system, with occasional convulsions. In this case, if the gums are purplish, cutting down to the teeth, though it will not cause them to appear any sooner, will, by relieving the tension of the gums, remove the irritation and fever very speedily.

If the gums are red and swollen, it is of no advantage to lance them, unless the tooth is so near the surface that it will be exposed by the retraction of the gum. In all other cases but these the use of the lancet should not be tolerated.

In these cases it is beneficial to open the bowels, and administer the remedies named above. Sometimes the little patient is extremely restless and troublesome, its sleep being troubled and broken; in this case I have employed R, Tincture of Lavender Comp. ʒij; Tincture of Lobelia ʒj; Simple Syrup ʒjss; in doses of half a teaspoonful as often as required: or Oil of Anise ʒss; Opium, grs. ij; prepared Chalk and white Sugar, equal parts, ʒss; triturate thoroughly, and administer in doses of two or three grains as often as necessary.

In all of these cases, the child's diet should be light and unirritating; it should be taken in the open air, kept in good humor, and not disturbed during sleep on any account.

From the third to the sixth year the teeth frequently decay,

giving rise to vitiated secretions, bad breath, and disordered stomach.

The evil results are sometimes so serious that there is no means of reaching them except by removal of the entire decayed teeth. It would surprise a person who had never witnessed it to see what a speedy restoration of health will thus follow; the irritation is removed, the bad breath gone, the stomach regains tone, and the child, heretofore weak and puny, becomes healthy and strong.

ODONTALGIA.

Toothache is considered a minor matter by those studying medicine, but not by those suffering the pain; and every one who practices medicine should understand how to treat it skillfully. It may be divided into three forms: irritation of the exposed nerve, inflammation of the dental pulp, and inflammation of the periosteum, investing the alveolus and fang of the tooth.

The first may be recognized by the intermittent character of the pain, the intermission being so perfect frequently that there is no evidence of disease remaining.

Inflammation of the pulp may be recognized by the continuous character of the pain, the soreness of the carious portion of the teeth, and some constitutional disturbance. If it is not arrested, it goes on to suppuration, inflammation extending through the dental canals, affects the apex of the fang, pus forms at that point, and necessitates the removal of the tooth. Dentists not unfrequently meet with this after filling a tooth.

The third variety is periostitis, and is recognized by the feeling of tension, the tooth seeming to be elevated above its fellows, tender to the touch, and a continuous dull aching feeling, as if the tooth was some foreign body.

TREATMENT.—The first form may sometimes be relieved by local applications, as the Tincture of Aconite, Morphia thoroughly triturated with an equal part of Alum; Tincture of Opium and of Gelseminum; or, the applications of the Essential Oils or of Creosote. The last is employed with advantage for some days to remove the soreness, before getting the tooth filled. Counter-irritation behind the ears, or to the back of the

neck, the hot foot bath and a mild cathartic are appropriate means. If distinctly periodical, it may be arrested sometimes by the use of Quinia, as for any other intermittent.

The other two cases are cases of inflammation and should be treated like all other affections of this class, to promote resolution and preserve the organ. For this purpose, a brisk cathartic followed by an alkaline diuretic, and opiate, is about the best treatment; counter-irritation by the hot foot bath, cups or blister behind or before the ear, or to the nape of the neck, is useful, as are also, hot fomentations to the face. As a local application when the pulp is affected, the Tincture of Aconite, or Creosote with Morphia, are the best applications. If of the periosteum, the gum may be penciled with Tincture of Aconite or Belladonna. If pus forms in the alveolus, it is possible sometimes to save the tooth by making a free incision down to the collection with a long gum lancet. This treatment should only be adopted in cases where the tooth is likely to be of service after proper filling, and should not be adopted in other cases, as extraction is the quickest and true course when the tooth can not be filled. If the toothache is stopped by the means above named, no time should be lost in consulting a good dentist and having the proper work done.

STOMATITIS.

Inflammation of the mouth manifests itself in many different forms, and may be either a primary or secondary affection. Many forms are very troublesome to the patient and being connected with some other affection, or a general cachexia, are difficult to remove.

Simple stomatitis is characterized by heat, dryness, slight swelling of a part or the whole of the mucous membrane, and an erythematous redness of the part inflamed. It is not an unfrequent complication of diseases of the intestinal apparatus, and the eruptive and other fevers. Becoming sub-acute the tenderness disappears to some extent, but there is increased activity of the mucous follicles, and the secretion of a ropy mucus.

In treating this affection it is necessary that any irritation of the stomach be removed, and the bowels kept soluble; this may be accomplished by the administration of an infusion of

the Compound Powder of Rhubarb and Potassa. Then the use of any simple astringent wash will relieve the local disease; as, make a strong infusion of sage or privet, sweeten with honey, and to half a teacupful add 3i of pulverized Borax; an infusion of Hydrastis or Coptis, is excellent, as is also a solution of Chlorate of Potassa, with a small portion of Glycerine.

Chronic stomatitis may be the result of the simple form just named, when it is chiefly confined to the gums, and often kept up by carious teeth. In some cases the gums become spongy and red, and sometimes so tumified as to look like fungous growths; in others the gums ulcerate and are finally destroyed, the alveolar processes are absorbed and the teeth are loosened and fall out, or, have to be extracted on account of their tenderness.

A more malignant form of chronic stomatitis, often lasting for years is met with; almost the entire mouth and tongue is affected, the mucous membrane is of a dusky purple color, looks somewhat honey-combed from previous ulceration, yellowish vesicles spring upward and soon discharge, giving rise to a small ulcer, some of which are constantly present; the mouth feels hot, is exquisitely tender, sometimes bleeds easily, the gums and teeth are sore, and the patient can not eat solid food except with great pain. Various derangements of the system exist with this form of stomatitis, and require careful diagnosis.

The *treatment* of the first form of stomatitis named, is usually not difficult. Carious teeth and old fangs should be removed at the commencement, and a wash of Myrrh and Hydrastis, or, equal parts of Myrrh, Orris and Charcoal used freely. If this does not seem sufficient, a strong decoction of equal parts of Alnus, Rumex and Quercus Rubra may be employed, alternated with a solution of Chlorate of Potassa.

In the last form, I usually direct equal parts of the Tincture of Muriate of Iron and Glycerine, sometimes penciling the parts with the first named, if very soft and spongy; this may be followed by the use of a decoction of Cornus and Rumex, the washes first named may also be used. The internal treatment in these cases is very important, the Compound Syrup of Stillingia in doses of a teaspoonful with five grains of Chlorate of Potassa, may be given every four hours, or, the Compound Tincture of Corydalis, may be substituted for the Stillingia in the same doses. The Chlorate of Potassa answers an admirable

purpose and should not be neglected. If there is irritability of the stomach with irregularity of the bowels, it is well to give the Compound Syrup of Rhubarb and Potassa, and follow with a gentle tonic, as *Collinsonia* or *Hydrastis*.

PSEUDO-MEMBRANOUS STOMATITIS.—Under this head Copland describes a form of sore mouth, which appears in the shape of small irregular patches of a greyish white color, the parts surrounding being red, painful and hot. "The breath is fœtid, and the submaxillary glands enlarge. As the disease proceeds, the patches of membranous exudation extend, become more or less detached, and are succeeded by others, and the intervening surfaces are red and swollen. The tongue is swollen and the mouth continually open, allowing the escape of altered saliva. The enlargement of the lymphatic glands increase, the face swells, the breath becomes more fœtid and the pulse more quick and rapid, and generally soft, open, or full and weak." The disease sometimes extends back to the throat, and even involves the mucous membranes further, sometimes occasioning imminent danger. It may become chronic and continue weeks or months.

TREATMENT.—At the commencement, relieve irritation of the stomach, either by the administration of an emetic, or if thought best, by milder means. A tonic, sustaining course of treatment is then necessary, as the administration of *Quinia* and *Hydrastine*, with some preparation of *Iron*, and frequently one of the mineral acids. These means should be varied, and continued constantly, and in addition *Chlorate of Potash* will be found useful.

As a local application, the *Hydrochloric Acid* with Honey, one part to three, four or six, will be found as good as any thing; it should be applied with a small piece of sponge attached to a stick, to the membranous exudations, being careful to reach them all. At the same time, a saturated solution of *Chlorate of Potash*, with a small portion of *Glycerine*, may be frequently used. An infusion of *Cinchona*, acidulated with *Hydrochloric Acid*, has been recommended subsequently, but I would prefer the decoction of *Rumex*, *Alnus* and *Quercus Rubra*.

APTHÆ.

We may include under this head thrush and follicular inflammation. It makes its appearance in the form of small white points or patches on a red and inflamed base. The mouth is tender and irritable, so much so, that it is with difficulty that the child can nurse, and sometimes this becomes impossible. Occasionally the disease spreads until the greater part of the mouth is affected. Usually there is some disturbance of the nervous system, and more or less fever, the stomach is usually irritable and the bowels irregular.

TREATMENT.—The Compound Powder of Rhubarb and Potassa in infusion, should be administered until it acts on the bowels once or twice; or, if there is marked irritation of the stomach, with much constitutional disturbance, an emetic should be first given. If there is febrile action to any considerable extent, Tinctures of Veratrum and Aconite, equal parts gtts. x, to Water, ℥iv, may be given in doses of a teaspoonful every hour. As a local application, the mouth-washes named under the head of simple stomatitis may be used.

Where the disease persists after this treatment, give the little patient Quinia and Chlorate of Potash. In severe cases, an application of one part of dilute Sulphuric Acid to fifteen or twenty parts of Honey may be used, the ulcerated surfaces being occasionally brushed over with it, or, Gallic Acid in solution, or finely powdered Tannin sprinkled on the ulcers, may be used. Dr. Jenner recommends a solution of Sulphite of Soda, 3j. to 3j of Water; he supposes the disease due to a parasite which this destroys.

ULCERATIVE STOMATITIS.

This is a disease of childhood, but is sometimes met with in the adult. It occurs chiefly in children who have not been well nourished, those that live in damp, unhealthy places; but not invariably, as some of the worst cases I have met with have been those in good circumstances, having all the comforts of life.

On examining the mouth, we find the gums red, swollen and spongy, and where the ulcer is situate, a greyish, pultaceous

material, on removing which, the surface is raw and bleeding. It generally commences on the front part of the gums, but gradually passing between the teeth, affects the posterior surface; continuing, it destroys the gum both before and behind, and passing to the lips and cheeks adjacent, forms irregular ulcerations covered by the same material. If it continues long, the tongue is swollen and is marked by the teeth, the saliva becomes thick and very offensive, often streaked with blood, the gums bleeding at the slightest touch. The stomach is usually deranged, the bowels irregular, the tongue covered with a dirty coat, and more or less febrile action.

TREATMENT.—In the commencement of the disease, Chlorate of Potassa internally and as a wash, seems to be almost a specific. It should be administered in doses of three grains every four hours, and the mouth washed sufficiently often to keep it clean; from six to ten days are usually sufficient to effect a cure. If the disease is of longer standing, the mouth offensive, and the stomach deranged, it is best to premise with an emetic, followed by Compound Powder of Rhubarb to move the bowels once, and then give the Chlorate of Potassa, succeeded with bitter tonics. In these cases, it will be necessary to apply the officinal Dilute Nitric Acid to the ulcers with a camel's hair pencil; it should be applied daily until marked amendment is perceived. Dr. Mackenzie recommends the Sesqui-carbonate of Ammonia, in full doses in place of the Chlorate of Potassa, and I have no doubt from my experience with the preparations of Ammonia in diphtheria in scarlet fever, that it will answer an admirable purpose.

MERCURIAL STOMATITIS.

This is the most common form of manifestation of chronic mercurial poisoning. It may follow the administration of Mercury in a short time, or not for months or years, and may be occasioned by the smallest, as well as by the largest, dose of the mineral. It is rarely met with now, since Mercury is going out of date, but formerly it was of frequent occurrence. The symptoms are, to some extent, like those in the last form. The mouth feels unusually hot, and is sometimes sensible of a coppery or metallic taste; the gums are swollen, red, and tender; ulcers make their appearance and spread in all direc-

tions; the saliva is thick and stringy, and has that peculiar, offensive odor characteristic of mercurial disease; the tongue is swollen and stiff, and there is some fever, with derangement of the secretions. The disease progressing, it destroys every part that it touches, until the lips, the cheeks, and even the bones, have been eaten away before death comes to the sufferer's relief.

As the disease is produced by a specific poison, it is desirable to use means to counteract it. Sulphur has been employed for this purpose, and is the only agent that seems to exert a specific action. It may be given in powder, or as dilute Sulphuric Acid, or Sulphate of Iron, and also used as a bath if desirable. The ulcers should be touched daily, with the dilute Sulphuric or Nitric Acid as heretofore named, it being freely and thoroughly employed, and a soothing astringent gargle, as R, Solution of per Sulphate of Iron ʒij; Glycerine, ʒij; or, a lotion of Borax and Honey. The strength should be supported by the use of tonics and stimulants, nutritious and easily digested food, and moderate exercise.

GANGRENOUS STOMATITIS.

Cancrum oris may follow *stomatitis ulcerata*, previously described, in which case the ulcers assume a phagedenic character and spread rapidly, destroying all tissues that they come in contact with. The secretions of the mouth are excessively fetid, the stomach and bowels irregular, and the little patient very much prostrated; if it is not speedily arrested, it passes to a fatal termination.

True gangrenous stomatitis commences with a swelling and hardness of the cheek and lip, the tumefaction externally having a blanched glossy appearance. On examining the mouth we find but little tenderness, the part swollen being slightly redder than usual, and having in its centre an ash-colored eschar. The tongue is pale and somewhat loaded, the stomach and bowels deranged and there is marked exhaustion and cachexia, with languor and restlessness.

The eschar soon spreads, sometimes extending to the lips and gums, and is attended with a copious discharge of saliva, which soon becomes turbid; the breath is very offensive. The integument next becomes affected, a small vesicle or pale ashy

spot forming, soon becomes livid and sloughs. The ulceration now spreads rapidly, destroying the muscles, integument, and bones, until sometime previous to death the child could not be recognized.

TREATMENT.—In the early stage I should commence the treatment by the administration of an emetic, following it with Quinia in full doses, Chlorate of Potassa, and the mineral acids. As a local application externally, there is nothing better than a Terebinthinate embrocation, or, if sloughing is feared, Sulphate of Zinc ʒj, to Water ʒij. The ulcer should be penciled freely once a day, with the dilute Nitric or Sulphuric Acid, being careful to reach all parts of it, or, if severe use the strong acid. This may be followed by washes of Chlorinate of Soda, Chloride of Lime, or Creosote, with Camphor and Myrrh; pure air, nutritious diet, and perfect cleanliness, are important elements of success.

NURSES' SORE MOUTH.

Some years ago, a sore mouth prevailed extensively among nursing females; of late, it has become rare in this section, though in some parts of the country it is still prevalent. It usually commenced some days after confinement, but occasionally made its appearance in a mild form during the last period of gestation. It was frequently preceded by heart-burn, or pyrosis, sometimes during the entire progress of gestation. The first indications of it, were a feeling of heat in the mouth, with slight tenderness, and increased secretion of saliva, which seemed to irritate the inflamed surface.

On examination the mouth would be found reddened, the mucous membrane tumefied, and where the disease had become severe, small vesicles terminating in ulceration would make their appearance; commencing on the lips or tongue it would gradually pass back until it involved the entire mucous membrane, and in some cases extend to the pharynx, the œsophagus, and finally pass through the entire intestinal canal.

In these cases as the disease advanced, it would produce marked irritation of the parts invaded, of the stomach and of the bowels, occasioning great prostration from arrest of digestion. It would sometimes last during the entire period of nursing and only cease when the child was weaned.

TREATMENT.—To relieve irritation and arrest acidity of the stomach, I employed the Compound Powder of Rhubarb in small doses, and gave the Chlorate of Potassa, in doses of a teaspoonful of the saturated solution, every three or four hours. The Iodide of Potassa, in doses of five grains every four hours answered a good purpose in some cases, but in others it failed. Occasionally an infusion of equal parts of *Alnus*, *Rumex* and *Quercus Rubra*, administered internally and also used as a wash, would cure the disease when other means failed. As a local application, the Chlorate of Potassa was used with marked advantage, but in some cases its influence was not permanent; all of the milder mouth washes heretofore named, were employed with but temporary relief. Some practitioners used a solution of Nitrate of Silver grs. xx to grs. xl to the 3j of Water, and spoke highly of it. After trying various means, I finally discarded all mouth washes, using the general treatment above named, and recommending the smoking of Tobacco three or four times a day. This though an unpleasant treatment was uniformly successful, the disease in some cases being radically cured, but in others requiring a resort to the remedy every few days or weeks.

DYSPHAGIA.

The act of deglutition is performed by the fauces, pharynx, and œsophagus, hence *dysphagia*, or difficulty of swallowing, becomes one of the most prominent symptoms of disease of these parts. The causes of dysphagia are varied and may be summed up, as follows: 1st, From disease of the fauces, tonsils, or palate. 2d, From inflammation of the pharynx or œsophagus, or from local suppuration. 3d, From disease of the larynx. 4th, From paralysis of the muscles. 5th, From spasmodic stricture of the œsophagus. 6th, From structural change, stricture, ulceration, cancerous disease and pressure of adjacent parts, as from presence of aneurism or other tumors.

Dysphagia from the first named causes needs but to be mentioned at this place, as we have considered these diseases heretofore, as also the principal diseases of the pharynx.

Inflammation of the cellular tissue of the pharynx and œsophagus, is of rare occurrence, but may result from injury, or from pyæmia. In this case there would be marked constitutional

disturbance, more or less dyspnœa and great difficulty of swallowing. If the inflammation was diffused, the patient would pass rapidly into a typhoid condition, with extreme dysphagia. Examination of the neck and throat would enable us to determine the character of the difficulty.

The *treatment* should be active, a brisk cathartic, an alkaline diuretic, with a suitable portion of the special sedatives, would form the internal treatment. The hot Mustard foot bath, with the general bath and sinapisms to the spine, would be valuable adjuvants. The neck should be freely cupped and scarified, followed by warm applications. If pus should form, the dysphagia being great, and the constitutional symptoms severe, it is necessary to give it an outlet even though deeply seated. The system becoming much depressed, it should be supported by the employment of Quinia, the free use of stimulants, and nutritious food.

Diseases of the larynx give rise to dysphagia only when there is necrosis of the cartilages, and contingent inflammation and suppuration of the adjacent cellular tissue, except in very severe laryngitis, and in syphilitic ulceration, affecting the epiglottis. Severe dysphagia sometimes occurs in chronic phthisis from ulceration of the epiglottis, and is one of the most trying complications of the complaint. This may be mitigated to considerable extent by the inhalation of the vapor of Vinegar, or of Iodine; and sometimes by the use of a strong solution of Nitrate of Silver, directly applied to the parts affected.

Paralysis of the muscles may result from laryngitis, from shock, or from cold as in aphonia. It is usually but partial, the act of swallowing being performed with marked difficulty, owing to want of action of certain groups of muscles. I recollect one case in which for some weeks, the patient could swallow only as he would grasp the larynx with the hand and elevate it. This may be removed in many cases, by the use of stimulant local applications to the pharynx, as Tincture of Myrrh, Capsicum, Nitrate of Silver, etc. Or, Electricity may be used with advantage, passing the current from the spine through the affected muscles. Internal remedies may be employed, as the Extract of Nux Vomica, Ergot in doses of five grains four or five times a day, or the infusion in larger doses; the Rhus Toxicodendron and Staphisagria, may sometimes be employed.

Spasmodic stricture of the œsophagus occurs principally in young persons of a nervous habit, and most frequently in females when there is irregularity of the menstrual function, impaired digestion and hysteria. We recognize it from its sudden appearance, and the condition of the patient; spasmodic stricture sometimes is present during organic diseases of the œsophagus, greatly aggravating the patient's condition.

TREATMENT.—The use of fluid food for some time, demulcent drinks, with Tincture of Gelsemium in doses of twenty drops every three hours, with aperient enemata and hot fomentations will usually afford relief in a short time. A tonic and anti-spasmodic treatment should then be adopted, as of Quinia, Hydrastine and Bromide of Ammonium, with means to regulate the menstrual function, if a female; out door exercise with cheerful occupation of the mind, and the daily use of a salt-water bath, with brisk friction to the spine, will materially aid the treatment.

Structural changes of the œsophagus.—Dysphagia may be the result of annular constriction, ulceration, cancer, and pressure from aneurismal or other tumors. The history and close attention to the symptoms, will alone enable us to distinguish these cases from one another. In these no permanent relief can be obtained, and we have simply to palliate the symptoms as they arise.

ACUTE GASTRITIS.

Acute inflammation of the stomach is of rare occurrence except as the result of poisoning by the irritant acro-narcotic poisons. Arsenic, Corrosive Sublimate, Oxalic Acid and the mineral acids, are those of this class most frequently used.

SYMPTOMS.—The symptoms of acute gastritis vary greatly. In some cases there is no pain, but a feeling of intense depression, a small thread-like pulse, cold extremities, and a cold, clammy perspiration. In other cases the pain is most intense, burning, pungent or lacerating; there are violent retchings aggravating the suffering, the matter vomited varying with the contents of the stomach; the patient has an intense desire for water, but when taken it is seen to bring on the vomiting. The breathing is shallow and increases the pain, the patient lies on the back, with the feet drawn up, to take off the pressure of the abdominal muscles. The skin becomes hot

and dry at an early period, the tongue is red, the epigastrium tumid and tender, the pulse constricted and small, and the bowels costive. As the disease increases, all these symptoms become aggravated, the patient is delirious, or coma comes on, and he shortly dies.

TREATMENT.—When called to a case of poisoning by the irritant poisons, the first object is to remove the agent from the stomach as speedily as possible. Generally, emesis results from the poison, and we have simply to give large quantities of some demulcent to wash the stomach out thoroughly, and at the same time use the proper antidote if one is known. If vomiting has not occurred, it is much better to use the stomach-pump, and to avail ourselves of all means to quiet the stomach.

The first few hours having passed, we have to turn our attention to the relief of the acute inflammation of the stomach, and in some cases to neutralize the influence of the poison upon the system. Small quantities of ice-cold mucilaginous fluid may be administered, and ice given to the patient occasionally; the infusion of Peach-tree Bark as heretofore recommended will be found useful, as will sometimes the use of Hydrocyanic Acid and Morphia, or Sub-Nitrate of Bismuth; cups should be applied to the epigastrium, and followed with either hot fomentations or cold applications, as best relieves the pain. The bowels should be moved by an enema, sometimes one of a stimulant character having a marked influence in checking the nausea and vomiting.

As the patient is very much prostrated, it would seem that stimulants and food should be taken as soon as the nausea is checked. This must never be allowed, as a small quantity of ingesta will frequently cause a return of the severe symptoms. If there is imminent need of stimulants, ʒss of Brandy may be used as an injection, and repeated as often as necessary; Beef Tea and Milk may be used in the same manner. In some cases, after the lapse of a day or two, small doses of Turpentine or Creosote have been used with advantage, especially where there was hemorrhage.

CATARRHAL GASTRITIS.

Under this head we may group the very large class of inflammations of the stomach, which, while they can not be termed acute, as regards the intensity of the inflammation, are yet so as regards their duration if not improperly treated.

The causes are various: it may arise from cold, as other inflammations; or from intemperance in eating or drinking—which is a very frequent cause, especially in cities; or from some change in the blood, as in retention of urea, the menstrual discharge, or the introduction of an animal poison from without; and from sympathy with adjacent organs. It also occurs as a complication during other forms of disease, as heretofore described.

SYMPTOMS.—The patient complains of a sense of uneasiness, heat, and pain at the epigastrium, which are greatly increased by taking food, or sometimes fluids; there is nausea with retching and vomiting, especially after taking any considerable quantity of either food or drink into the stomach; flatulence and distension, with a sense of heat, or acridity and unpleasant sensation in the throat and fauces is common, and acrid or rancid eructations frequently occur. If vomiting occurs, the matter brought off the stomach is generally ropy, colorless and abundant, or colored by bile of a yellowish or greenish hue.

“Chilliness or slight shivering often precede and attend the pain and vomiting, with a sense of anxiety at the præcordia; and tenderness, fullness and distension of the epigastrium; depression of spirits and of strength, a dark or sallow circle around the eyes, a loaded tongue, the point and edges being red or indented by the teeth, or the surface more generally red, and the papillæ elevated, with great thirst and desire for cold fluids. The bowels are costive, and the urine is scanty, high-colored, and generally presents an acid reaction. The pulse is frequent, soft or broad, open or compressible; the skin dry and feverish; the breathing is frequent and shallow, and the patient either sits up for a time, or lies on his back in bed. All kinds of food, especially animal food, are loathed; or, when tasted, excite nausea and vomiting, which generally also follows warm drinks, especially tea.”—(Copland.)

TREATMENT.—The constipation of the bowels should be overcome by laxative enemata, as one means of revulsion; cups may be applied to the epigastrium, and followed by the irri-

tating plaster, or the wet bandage. The warm bath is attended with marked benefit, but if this can not be used, the vapor bath, occasionally followed by the cold sponge bath, or the wet sheet pack, answers admirably. Demulcents internally are very useful, but should not be made to take the place of important remedies, if any are constantly used. I would recommend the Althæ, which answers the additional purpose of increasing the urinary secretion—a very important matter in some cases.

At first, small doses of an infusion of Peach-tree Bark, with ice to check the thirst, and minute doses of Morphia, with a weak solution of Nitrate of Potassa or Citrate of Ammonia are useful. In cases where the vomiting is very severe, especially if there is some hemorrhage, small doses of Turpentine, with a Turpentine *stupe* to the bowels, is highly recommended. The Sub-nitrate of Bismuth occasionally answers a good purpose, as does an infusion of the Compound Powder of Rhubarb. The active symptoms having subsided, counter-irritation with the irritating plaster, and the use of mild tonics may be continued until the cure is complete.

CHRONIC GASTRITIS.

This is frequently a continuance of the acute disease last described, but many times it results from intemperance in eating or drinking, especially overburdening the stomach, which may be readily done at times, when the system is exhausted, even if there has been no previous tendency to disease.

SYMPTOMS.—In this affection we have the evidences of imperfect digestion and nutrition, in the loss of strength and flesh, and the languor the patient complains of; continuing, it causes derangement of the bowels, the skin and kidneys; headache is of frequent occurrence, and neuralgic pains not uncommon. The nervous system is deranged, the patient is irritable and fretful, has many imaginary diseases, which to him are a source of great alarm.

The symptoms referable to the stomach are often those of indigestion, a feeling of tension, with heartburn and sometimes nausea after the food is taken. When the stomach is empty, there is a sense of gnawing, of craving, or of sinking, which is extremely unpleasant, and sometimes causes the patient to

be taking food frequently through the day, to the great detriment of the disease. Sometimes there are acrid or foul eructations for hours after a meal is taken, which occasionally do not subside until the stomach is relieved by emesis.

DIAGNOSIS.—We diagnose a chronic gastritis by the symptoms of imperfect digestion above named, by the loaded or furred tongue, its tip and edges being red, by the epigastric tenderness, and the severe constitutional disturbance.

PROGNOSIS.—If ulceration has not taken place, the prognosis may be considered favorable, except in those cases in which it is the result of intemperance.

POST-MORTEM EXAMINATION.—The lesions of the stomach are not very marked; the mucous membrane is usually of a reddish-brown or dull-grey color, with sometimes livid discolorations; there is usually thickening and induration of the mucous membrane, sometimes extending to the entire coats, and more marked at the pyloric orifices.

TREATMENT.—Time and perseverance are important elements in the treatment of chronic gastritis, the less the hurry, usually, the better the patient will get along. If the stomach is very irritable, and digestion feeble, the blandest articles of food should be selected and taken in as small quantity as will support the strength; too much importance can not be attached to this; for the stomach, I have used the infusion of Peach bark in doses of a teaspoonful every hour, an infusion of the *Cornus Florida*, of the *Collinsonia*, of the *Coptis*, and agents of like character, with marked advantage. If there are acrid eructations, the Sub-nitrate of Bismuth; if increased secretion of mucus, with nausea, the Oxide of Zinc in doses of one grain every five or six hours will be useful.

The irritating plaster should be applied to the epigastrium, and renewed every day, or every other day, until a crop of pustules is produced; it may then be removed and the part dressed with simple Cerate, until the irritation disappears, when it should be re-applied. In some cases it is well to continue it so as to produce free suppuration, but usually the plan above named will prove the best. This application, it has seemed to me, has accomplished more in this disease than all other remedies combined.

When the irritation has subsided to some extent, the milder bitter tonics, as the *Hydrastis*, may be employed with great ad-

vantage. In some cases, there seems to be a want of innervation to the stomach, and I then use *Nux Vomica*, as *R*, Extract of *Nux Vomica*, grs. iv; *Hydrastin*, 3ss; Extract of *Taraxieum*, q. s.; *M.*, and make thirty pills, of which one may be taken three or four times daily. The liver is deranged in nearly all these cases, most generally torpid, though sometimes too active. In the first case, the administration of *Leptandrin* in doses of one or two grains two or three times a day, or *Podophyllin*, thoroughly triturated with white Sugar, in doses of one-sixth to one-eighth of a grain, with one grain of *Dioscorin*, answers an admirable purpose. Sometimes the stomach will bear well the *Podophyllin* pill, in doses of a half grain, with Extract of *Hyoseyamus* at night; or, we may use in these cases, the Compound Tincture of *Corydalis*; the *Essl. Tinctures* of *Cornus* and *Collinsonia*, with *Glycerin*, equal parts, answers a good purpose to alternate.

If there is marked derangement of the kidneys, it is better to direct the treatment to them, as until free secretion is established, it is impossible to favorably affect the stomach. If there is feeble digestion, a solution of *Pepsin* formed by digesting the stomach of a calf in a pint of Sherry wine for ten days, may be used in doses of a tablespoonful after meals.

ULCERATION OF THE STOMACH.

Ulceration of the stomach may be divided into three varieties; superficial ulceration, follicular ulceration, and chronic or perforating ulcer. The symptoms of ulceration of the stomach are rather obscure, and there are no well defined evidences by which we can distinguish one from another; the distinction, therefore, is post-mortem.

SUPERFICIAL ULCERATION.—According to Habershon, the symptoms are, vomiting, pain at the serobiculus cordis, pyrosis, loss of strength, or great prostration. The great prostration of strength was a marked symptom, and a most interesting one, taken in connection with the intimate union of the stomach with the large plexuses and gangliæ of the sympathetic nerve. The association of some cases of superficial ulceration with pyæmia, appears to show that a general dis-

eased condition of the blood predisposes or excites this change. Hematemesis sometimes occurs. In those cases following portal congestion, vomiting of coffee-grounds substance took place several days before death. These cases were connected with renal anasarca and diseased heart, or with cirrhosis.

POST-MORTEM EXAMINATION.—The mucous membrane is foul, congested, especially the rugæ, and changed in color. The ulcers vary in number, usually about one fourth of an inch in diameter, with rounded, irregular edges, and extending through the mucous membrane; they are more numerous near the pyloric orifice, sometimes seeming to have destroyed nearly the entire mucous membrane.

FOLLICULAR ULCERATION.—The symptoms of follicular ulceration of the stomach are very similar to those of chronic gastritis. It is generally met with in children, when it is usually attended with diarrhœa, being one of the forms of cholera infantum. It is especially recognized by the great irritability and restlessness of the child, the dry mouth, furred tongue, red at tip and edges, tenderness on pressure over the epigastrium, pinched appearance of the countenance and excessive and persistent irritability of the stomach. Occasionally hemorrhage occurs, and we have the vomiting of coffee-ground looking matter.

Post-Mortem Examination, shows a condition of chronic inflammation, the mucous membrane thickened and discolored, with very many minute points of ulceration seeming to be situate in the gastric follicles.

CHRONIC AND PERFORATING ULCER. — Chronic ulceration is the result of long continued inflammation, so that it is preceded (unless occasioned by injury when it may be acute) by the symptoms heretofore named. Sometimes no other symptoms present themselves, but usually the pain is more severe, at times intense. Vomiting of food is the most marked evidence of chronic ulceration, if we except hemorrhage; the period at which it occurs is variable, sometimes the food is at once rejected, but usually from one to four hours elapse; at times a meal is completely digested, the vomiting occurring afterwards, or stopping with slight nausea and retching. Hemorrhage, though tending to confirm the existence of ulceration, is not pathognomonic as some would suppose, as it may occur from congestion, determination of blood and malignant disease.

Chronic ulceration, though a severe disease, is not necessarily

or speedily fatal; in many cases the patient may be around, in others the disease will continue for years. It terminates fatally : 1st, from gradual exhaustion ; 2d, from hemorrhage ; and 3d, from perforation of the peritoneal cavity.

Perforating ulcer presents the symptoms already named up to the period of perforation. When this occurs the pain in the epigastrium becomes excruciating, which in turn extends to the entire abdomen ; in some cases there is nausea and vomiting, but in others these symptoms are absent ; there is great prostration, a livid and contracted countenance, coldness of extremities, and a feeble pulse ; occasionally there is severe hemorrhage. The disease may terminate fatally in a short time, or, it may continue for several days, or, even two or three weeks, or, in rare cases, the patient may recover.

Post-Mortem Examination.—In chronic ulceration, the ulcers are found principally near the pyloric orifice, they vary in size from half an inch to three inches, are usually round, with elevated and well defined edges. There is tumefaction of the mucous membrane, and thickening of the sub-mucous cellular tissue. If perforation has occurred, the opening through the mucous membrane is largest, and that through the peritoneum is smallest. In some cases efforts towards a cure are observed, the stomach becomes attached to adjacent viscera by adhesion, and inflammation and partial cicatrization of the ulcer takes place. In cases of non-perforating ulcer, the form of the stomach is sometimes changed, from the contraction of plastic material thrown out for the repair of the part.

TREATMENT.—In a majority of cases the treatment will be the same as for chronic gastritis. In some cases the Oxide of Zinc with a small portion of Opium and Leptandrin seemed to act well. Dr. Brinton recommends ten or twenty grains of Tris-nitrate of Bismuth, with five or ten grains of Compound Kino Powder, in cases of diarrhœa. The best remedy for hemorrhage is Gallic Acid, two grains dissolved in an ounce of water, with the aid of ten drops of Sulphuric Acid. The irritating plaster or other means of counter-irritation must not be neglected, and the strictest attention paid to diet. Illustrative of the treatment, I may quote from Dr. Bennett : “ The remedies I have found most efficacious, in simple chronic ulcer of the stomach, are quietude, careful regulation of the diet, Bismuth and Opium Pills and Powders, and sometimes warmth at others cold applied locally. It may be frequently observed

that the mere coming into a hospital, and remaining quietly in bed, has a favorable effect in modifying the distressing symptoms. I have also remarked that those patients who are always getting up and walking about, suffer much more than those who remain in bed, especially at the commencement of the disease, hence, repose in an easy position, is to be enjoined. The diet should consist of farinaceous, pulpy substances, occasionally mixed with beef tea, or milk, given in small quantities, frequently repeated. If the stomach will not tolerate the food warm, it should be given cold. When, despite this treatment, vomiting continues, it is best to suspend all nourishment for a day or two, and give nutritive enemata. As the patient gets better, the amount of solid food should be very cautiously increased. Thirst is a distressing symptom in such cases, and is best allayed by allowing ice to dissolve in the mouth slowly, or sipping at intervals, milk and lime water mingled in equal proportions. The pain is alleviated best by Bismuth and Opium, combined in the form of pills or powder. Sometimes local warmth, but more frequently pounded ice, mixed with salt in a bladder, applied over the part will give relief. Two or three leeches, or a counter-irritant, may succeed, when every thing else fails, and should be tried. Quietude and suspending all ingesta for a time, I believe to be the best remedies for hemorrhage, and when exhaustion from want of food exists, nutritient enemata, with wine, must be administered. When a perforation occurs, I have already pointed out the great importance of avoiding the giving of stimuli by the mouth, and have stated the practice which should be perseveringly followed, namely, the administering Opium in the form of pill, quietude, avoidance of purgatives, and nourishing at first by enemata, and then cautiously by non-irritating substances, given in small quantity by the mouth."

STRICTURE OF THE PYLORUS.

Stricture of the pylorus is usually the result of hypertrophy of all the tissues at this point, but rarely it may be found when these are normal. The source of this difficulty is obscure, but we have reason to believe that it is the result of long continued irritation, or chronic inflammation, the symptoms of which have preceded it. The symptoms are common to this, to can-

cer and some cases of ulceration. There is dyspepsia with pain in the epigastrium, and vomiting after eating. Of course the long continuance of imperfect action of the stomach, will give rise to marked debility, and to functional derangement of the organs; occasionally the enlarged pyloric extremity can be plainly felt through the abdominal walls, when, if there are no evidences of a cancerous cachexia, we may conclude that we have stricture with hypertrophy.

As regards the treatment, we can do nothing but palliate the symptoms as they rise. The relief of irritation may check the progress of the disease, and this may be sometimes afforded by the means heretofore named. The food should be principally liquid, and easily digested, and taken in small quantities at a time. Harsh treatment, or the administration of tonics and stimulants should be studiously avoided, and in this way the patient's life may be prolonged for a considerable time.

CANCER OF THE STOMACH.

The stomach is one of the organs most frequently affected with cancer, every form of the disease being observed, but schirrus and medullary are most frequent.

The disease is most frequently found at the pyloric extremity, and originates in the mucous membrane. In its progress it invades all the tissues, and finally they are resolved into a cancerous mass. The disease extends in the course of time affecting the adjacent glands, the pancreas, duodenum, in fact all parts contiguous.

SYMPTOMS.—The symptoms of cancer, in the early stage are very obscure, being those common to the diseases interfering with the functions of the organ heretofore named. There may, or there may not be pain, when it exists, and may be sharp and lancinating, or dull, twisting and heavy; sometimes it is most severe after taking food, but at others when the stomach is empty. When the disease has obtained considerable development, vomiting is generally the most prominent symptom, coming on a short time, or several hours after eating. The material thrown off the stomach is usually frothy and fermenting, and contains the *sarcina ventriculi*. In its later stages, the cancerous mass can generally be tolerably well defined, the health is very much shattered, and the pa-

tient presents that peculiar dull-yellowish appearance, denoting a cancerous cachexia. The pain is now very intense, and constantly requires means to alleviate it; digestion is very imperfect, vomiting coming on immediately when the stomach is distended to any considerable extent, and almost always before digestion is accomplished. Thus the patient is gradually worn down by physical suffering, and the want of nourishment.

DIAGNOSIS.—As before remarked, it is difficult to distinguish between these diseases of the stomach, yet with care a very accurate diagnosis may be formed. We would diagnose cancer from inflammation, by the fact that the latter extends over a long period of time, while cancer develops itself in from three to twelve months, and runs its course in from one to three years; vomiting of blood occurs in ulceration, but rarely in cancer until the last; ulceration is frequently amenable to treatment, cancer is not; then there is the additional evidence of the enlargement of the epigastrium, and cancerous cachexia. The last would be the only point by which we could determine between the malignant and non-malignant enlargement of the pylorus.

TREATMENT.—As we can not expect to cure the disease, the treatment will be such as will palliate the symptoms, and if possible retard the growth of the cancer. The measures named under the head of ulcer of the stomach, will be appropriate, especially those quieting irritation. Ext. Conium, with an infusion of Peach-tree Bark, has seemed to answer a better purpose in two cases that I have treated, than any other remedies. The Sub-nitrate of Bismuth with Opium; the Oxide of Zinc; Tincture of Perchloride of Iron one part, to Glycerine two parts, with the addition of Morphia, is advantageous. When not too irritating, a solution of Tannin may be used freely, relieving many of the most unpleasant symptoms, and arresting to some extent the growth. The disease will have to be treated much on general principles, meeting the indications as they arise, though, at last, it resolves itself simply into the administration of Opium and Morphia.

DYSPEPSIA.

Under this head we may group the entire class of functional disorders of the stomach, which are primary in their origin, and not dependent upon structural change.

Difficult or imperfect digestion, is one of the most frequent ailments we meet with in practice, and requires more discrimination for its successful treatment. This will be more apparent if we notice those conditions that are necessary to healthy digestion; they are: 1st, A proper quantity and quality of ingesta; 2d, Thorough mastication and insalivation; 3d, Normal action of the muscular coat of the stomach, giving the food proper motion; 4th, A proper quantity and quality of the gastric juice, and of the pancreatic and biliary fluids; 5th, Normal innervation, and healthy condition of the blood; and, 6th, A reciprocal action of the intestinal canal. Dyspepsia may be the result of a failure of any of these conditions, or a partial failure of two or more of them, so that very different causes may give rise to a similar result.

Habershon classifies the causes of dyspepsia, as: "1st, From abnormal condition of the mucous membrane and its secretion; 2d, From the muscular movements being impeded; 3d, From the state of the vascular supply; 4th, From the condition of the nervous system; and lastly, From the character and changes that take place in the food. Several of these causes of dyspepsia may be combined; some lead to disease of a very transient form, others are irremediable."

The mucous membrane may be affected in various ways: Thus, we may have atrophy, especially of the follicles, the change at last becoming so great that digestion can not be accomplished, and the patient necessarily dying of marasmus.

Again we find other cases in which there is undue activity of the mucous glands and of course deficient action of the gastric follicles, hence we have two conditions either of which if considerable would materially interfere with digestion. This condition is frequently observed associated with chronic disease, as in anæmia, chlorosis, chronic bronchitis, and other chronic affections of the mucous membranes. As an independent affection, the symptoms are a feeling of weight and tension in the epigastric region; a bad taste in the mouth; foetid breath; occasional nausea; sometimes vomiting, when considerable quantities of vitiated mucus may be raised; a

heavily loaded tongue, especially at the base and in the early part of the day ; sometimes there is a disgust for food, and for several hours after it is taken, there are unpleasant eructations ; at others the appetite is craving, but the patient feels uncomfortable after eating. The bowels are usually constipated, but there are occasional attacks of diarrhœa, in consequence of imperfect digestion of the food.

The reverse of this condition may exist, there is scanty mucous secretion, with normal or slight excess of gastric juice, the result being a continued irritation of the stomach, from want of its natural protection. In these cases we have heartburn, both after eating and when the stomach is empty. There is a feeling of soreness and rawness when distended with food, and a disagreeable gnawing and feeling of contraction when it is empty. Digestion is not impaired to such an extent as it is found in some other cases, yet the symptoms are exceedingly unpleasant.

The gastric juice may be increased in quantity or deficient, or, may be changed in quality, being too active, or not active enough. In the first instance, though normal in quality, the excess impairs digestion, and by its acrid properties irritates the stomach and causes pain and unpleasant sensations. It is this excess that gives rise to pyrosis or water-brash. It may be excessive simply by too great dilution ; The excess may be at the period of digestion, or in the interval when the stomach is empty ; in the first case, there are acid eructations with more or less of the partially digested food, the last is attended by severe heart-burn.

If deficient, the causes of imperfect digestion would seem to be evident, but this is not the case, for the deficiency may be only in one element, as of an acid, or of water, or of pepsin, or it may be deficient on account of the intense acidity of the secretion irritating the stomach and checking its formation. In these cases the symptoms are varied, but there is evidence of imperfect digestion, and more or less unpleasant sensations at the epigastrium.

The secretion may be irregular, giving rise to a craving, with pain at the stomach, cramp, heart-burn, etc., in the intervals between meals, and sometimes nausea and vomiting or a burning sensation, and unpleasant eructations, two or three hours after eating. This irregular secretion if it continues, causes great irritation, sometimes disorganization of

the mucous membrane, and may cause its digestion if its innervation is enfeebled by injury or severe shock to the system. Impaired action of the muscular coat will undoubtedly derange the process of digestion, as it depends to a considerable extent upon the continual movement and attrition of the food. The general symptoms are those common to the other forms of dyspepsia, but there is an absence of pain and in consequence gaseous accumulations and uneasiness from distension.

The general sluggishness of the system, especially the torpor of the nervous system, and slow action of other organs, with obstinate constipation of the bowels, are additional indications. The reverse of this is productive of fully as serious consequences, as the food is forced through the pyloric orifice before stomachic digestion is complete. The result is diarrhoea, with imperfect nutrition, great loss of strength and flesh, and if it continues, death from exhaustion.

Changes in the circulating fluid, may give rise to dyspepsia, but they more frequently intensify it by preventing normal nutrition of the stomach. All have observed the intimate relation existing between the blood and the stomach in acute diseases, hence in fever, though the appetite may demand food, yet digestion is slow and imperfect; though usually the appetite disappears with the power to digest. In many diseases in which the blood is loaded with impurities, we find, that all means directed to the stomach are inefficient; we must first remove the detritus from the blood, and having secured a normal circulating fluid, though small in quantity, digestion can be again established. Torpidity of the bowels, and inactivity of the skin, doubtless affect the stomach in this way, in addition to the extension of the derangement by continuity of structure and sympathy.

The most common of these causes of dyspepsia, and one that should be carefully watched for in all these cases, is derangement of the urinary secretion; I have seen cases in which all other means having been exhausted, a treatment directed to restore this secretion, has radically cured the dyspepsia. That this is the fact, is proven conclusively, when we observe that in every derangement of the kidney of any considerable duration, the function of the stomach is one of the first impaired.

Like all other functions, perfect digestion depends upon

normal innervation; and in this case it is dependent upon the normal condition of three parts of the nervous system. The great sympathetic nerve seems to be the governing power in a state of health; the pneumo-gastric nerve is distributed to it to connect it with the heart, lungs and brain, and it is connected with the spinal cord by communicating filaments to the sympathetic gangliæ. Disease of any of these sources of innervation may give rise to dyspepsia, and conversely, disease of the stomach may give rise to derangement of these different parts of the nervous system.

Derangement of innervation manifests itself in two principal forms, irritation and atony. The first, as we have already noted, may arise in and be confined to the stomach, or it may be the result of distant lesions. In the first place, we have irritation of peripheral nerves, with determination of blood, derangement of secretion, and other results that follow. In the last, we have the same effects but the cause is distant, as in irritation of the stomach from disease of the brain and spinal cord. The severest cases of irritation we ever witness, are from this cause, as in some cases of cholera infantum. We again see causes in which the irritability of the stomach depends upon disease of the spinal cord; and cases in which we are convinced that the lesion is one of the sympathetic nervous system, though we are unable to prove it.

Derangement of the stomach reacts on the nervous system, and organs supplied by the same system of nerves. Thus, we have hypochondriasis, hysteria, irritation of the spinal cord, cough, expectoration, and seeming disease of the lungs, palpitation and other disordered action of the heart as its result.

The character of the ingesta is very important as an element of dyspepsia. Food may be taken in too large quantity, or the quality may be such as to overburden the stomach; hence its continuance gives rise to imperfect digestive power. Abnormal changes taking place in the food may not properly be considered a cause of dyspepsia but rather a result, and yet serve to perpetuate it. These may be divided into putrefactive decomposition and the formation of sulphureted hydrogen; simple fermentation giving rise to carbonic acid; fermentation forming lactic or butyric acids, and the formation of *sarcenia ventriculi*.

SYMPTOMS.—The principal symptoms have been named as we considered each lesion, but we may reconsider them with

advantage. Dyspepsia, as we before remarked, is imperfect digestion, and from this we have feeble and imperfect nutrition, and the results that flow from it, derangement to a greater or less extent of all the functions of the body, and loss of flesh and strength. Unpleasant sensations in the region of the stomach are always present in some degree, but vary as regards its condition; pain, burning, sense of soreness, tension, fullness, weight, tenderness on pressure, are the principal ones, and for the diagnostic bearing of them I would refer to the preceding description.

PROGNOSIS.—The prognosis may be favorable in a large majority of cases, if the patient's appetites can be controlled for a sufficient length of time; if not, medicine will but palliate the disease, or remove it for a time. In some cases a cure is impossible, relief of the most unpleasant symptoms being all that can be expected.

TREATMENT.—In the first case named treatment will be of little avail, as the structure having become atrophied will not respond to the action of medicines; relief may be obtained by the administration of the gentle bitter tonics, and stimulation by *Nux Vomica* or *Strychnia*. Digestion may be greatly aided by the administration of Pepsin after meals. I use it as before named: take the stomach of a calf, cut it in small pieces, and digest it for ten days in a pint of Sherry or Catawba wine; from a tea to a tablespoonful may be taken after each meal, and repeated in an hour or two, if necessary.

When the symptoms indicate excessive secretion of mucus, or where there is fermenting or decomposing food in the stomach, a thorough emetic once, twice, or three times a week, with the subsequent use of bitter tonics, will readily effect a cure. An emetic may be used occasionally in cases of torpor of the stomach, and usually gives marked relief and facilitates the action of other medicines. There are also some cases of irritation, the system being sluggish, in which it may be resorted to.

In cases of atony of the stomach, whether accompanied by increased secretion of mucus or not, the extract of *Nux Vomica* or *Strychnia* is used with the greatest advantage; the first may be used in doses of one-eighth of a grain; the last in doses of one-sixtieth to one-twentieth of a grain. I frequently associate the *Nux Vomica* with *Hydrastin* in the form of a pill, adding a small portion of *Podophyllin*, which increases its

efficacy. The Strychnia is best given in solution, which is rendered more pleasant by the addition of a few drops of Muriatic Acid. As a common tonic I have found none better than, \mathcal{R} , Hydrastis, 3ss; Tincture of Xanthoxylum, 3ij; Water, 3vj; \mathcal{M} ., and give in tablespoonful doses three times a day. In these cases counter-irritation is useless, except in those rare ones in which the secretion of mucus is excessive. In the case last named, the Oxide of Zinc is a very efficient agent, as is also the Oxide of Silver. If in these cases there is factor of the breath, with tenderness of the mouth and gums, the Chlorate of Potash may be used with advantage. The administration of laxative doses of Podophyllin and Leptandrin, guarded by Extract of Hyoseyamus or Extract of Cannabis, is very necessary, as is also the daily use of the alkaline bath with brisk friction.

The next class of cases are difficult of diagnosis and hard to cure, but we may with care determine with considerable accuracy their condition. The restoration of all the secretions is of great importance, hence we employ the bath with friction thoroughly, and restore a normal action of the bowels by laxatives held in suspension with Mucilage or Oil. I have used the Podophyllin triturated thoroughly in Salad Oil, and with Ulmus or Gum Arabic, or it may be formed into a pill with Aloes, coated with Gelatin, and sugar-coated if desired. Small doses of Tincture of Veratrum and Belladonna will be found useful in some cases, as will also the Gelseminum.

Pyrosis is controlled by the use of Sub-nitrate of Bismuth with bitter tonics, and the employment of counter-irritation. Some of the vegetable alteratives have a marked action in the confirmed cases, as the Alnus, Scrophularia, Trillium and Ptelea. I have used a pill of \mathcal{R} , Extract of Nux Vomica, gr. iij; Extract of Ptelea, 3ss; Hydrastin, gr. xv; \mathcal{M} ., and make thirty pills, and give one three or four times a day. Increased acridity depends upon irritation of the stomach, which is best relieved by the use of the irritating plaster and the administration of an infusion of Peach bark. Occasionally we find that imperfect digestion is caused by the taking of fluids too freely during and after a meal, the gastric juice being too greatly diluted. In such case, all fluids at this time should be proscribed and food taken in a solid form as much as possible. Acidity of the stomach and heartburn is sometimes relieved by the use of vegetable acids.

If the gastric juice is deficient, we may increase it by strict attention to the general health, a restricted diet, and the use of bitter tonics and gentle stimulants. It may be deficient, on account of a want of the necessary fluid, and in such case, a glass of cold water taken one or two hours after eating will give relief. The employment of a small portion of Muriatic Acid, largely diluted, is sometimes attended with advantage. Irregularity of the secretion is remedied by the use of bitter tonics and the means named to relieve irritation.

Impaired action of the muscular coat demands the use of bitter tonics and Iron, with the *Nux Vomica* or *Strychnia*. If connected with constipation, as is frequently the case, we associate small portions of *Podophyllin* with it. Too great activity should be treated with narcotics and sedatives, and the use of *Dioscorin* and sometimes *Bismuth*.

When there is evident lesion of the blood it is necessary to promote secretion from all the excretory outlets. For this purpose a careful selection of vegetable alteratives, possessing tonic and stimulant properties will be better than any other remedies. The Compound Tincture of *Corydalis* with an alkaline diuretic, as the Acetate or Citrate of Potassa, will be found effective. Failure of the kidneys to properly eliminate nitrogenized material from the blood may be treated in the manner hereafter named when speaking of the diseases of those organs.

As regards the derangement of innervation we use excitants if defective, and sedatives, narcotics and counter-irritants if excessive. If there is irritation of the dorsal spinal cord, marked benefit results from the continued use of a counter-irritant to the part. In other respects we would treat it on the principles already laid down.

In cases in which there is tendency to putrefactive decomposition, or unnatural fermentation, it is very necessary that the patient restrict himself to scant diet, and one easily digested; if this is not done it will be impossible to restore natural tone to the stomach. To correct this for the time being, the Hyposulphite of Soda, Charcoal and Creosote, have been recommended; the first as especially applicable in sarcina.

ACUTE HEPATITIS.

Inflammation of the liver is a disease of rare occurrence, more so, possibly, than of any part of the digestive apparatus. It is either acute or phlegmuous, with tendency to terminate in suppuration; or sub-acute, giving rise to functional derangement, and if continued to effusion of plastic lymph and cirrhosis, or to a condition of chronic enlargement. The causes of hepatitis are those that would give rise to an inflammation of any other portion of the body.

SYMPTOMS.—Acute inflammation usually affects but a small portion of the organ, and the local symptoms will depend somewhat upon its location. The disease usually commences with a well-marked chill or rigor, attended by nausea and vomiting, frequently of biliary matter. At this time there is a feeling of tension and oppression in the hypochondria, especially the right, and in the epigastrium; and frequently with the vomiting there is a desire to go to stool, but without the power. Marked febrile reaction follows the chill, a hot, dry skin, hard and frequent pulse, tongue coated a dirty-yellow, patient dull and torpid, and complaining of an intense aching across the temples, bowels constipated, urine scanty and sometimes discolored with bile pigment.

The fever is always remittent, though sometimes the remissions are not well marked; they occur usually in the morning. These symptoms continuing, we find but little change, only that the patient grows more feeble, the fever assuming a typhoid type, with a dark tongue, unless from the situation of the inflammation other parts become involved. Thus, if the portion next to the diaphragm is involved, an irritation of the lung is produced, and a more or less severe cough with dyspnoea and expectoration is produced. If of the part contiguous to the colon, a dysentery may be excited that greatly increases the patient's suffering.

The inflammation terminates in resolution, in structural change induced by effusion of coagulable lymph, or in suppuration. The first usually occurs in from seven to nine days; suppuration may occur as early, or may be postponed for two, three, or four weeks. The symptoms of suppuration are increased prostration, the occurrence of rigors, with hectic fevers or night sweats, and a dull, throbbing, tensive pain.

These symptoms may continue many days before the pus comes to the surface, or is discharged through the other organs. When pus is formed it will point to that part where there is least resistance: thus, if situate on the right side, it will open through the abdominal wall; if at the superior surface, it will perforate the diaphragm, and be discharged through the bronchi; if of the lower surface, it will probably discharge into the transverse colon. If there remains anything like normal vitality, adhesive inflammation is set up at that part where pressure of pus is greatest, coagulable lymph is thrown out, and the parts are agglutinated together; if it were not for this, the pus would be discharged into the peritoneal cavity.

In sub-acute inflammation of the liver, the disease appears in a similar manner: first, a chill, then febrile reaction, disturbance of the stomach, and arrest of secretion. The patient complains of weight and tension in the right hypochondrium, and a feeling of soreness and deep-aching pain; occasionally there is marked pain in the side, coming on in stitches, and some pain and aching in the shoulder, the dorsal spine, and neck. Occasionally the patient becomes *jaundiced*, when the symptoms become very much aggravated, sometimes assuming a low typhoid type.

DIAGNOSIS.—We diagnose a hepatitis by the febrile action and location of pain, and by the marked derangement of the digestive apparatus.

PROGNOSIS.—The prognosis is favorable in all except the very acute cases, in which there is danger of suppuration. Even in this case the prognosis is not so very unfavorable, as many cases recover, though the duration of the disease is long, and it may entail subsequent suffering.

POST-MORTEM EXAMINATION.—The liver is usually found enlarged, and occupying much more space under the ribs, the diaphragm being carried up. It contains a greater amount of blood, and is redder in color, or mottled. Lymph may be deposited in various parts, and more or less organized. Sometimes softening results, and we find the liver friable and easily torn, and its capsule easily separated. If there has been suppuration, we have the evidence of it in the presence of an abscess, or in the presence of small, purulent collections distributed through its texture, interstitial suppuration.

TREATMENT.—The treatment of hepatitis will not vary materially from that proper for other inflammations. The first

object is to place the stomach in such condition that remedies may be kindly received and appropriated. If there is nausea and vomiting, there is little use to temporize with it; a thorough emetic will relieve this, and also modify the fever. Whether this is given or not, the patient should be put upon the use of the special sedatives, with a diaphoretic, as: \mathcal{R} , Tincture of Veratrum, Tincture of Aconite, āā , gtt. xx; Tincture of Asclepias, $\text{f}\mathfrak{z}$ j; Simple Syrup, \mathfrak{z} ij; \mathcal{M} .; of which a teaspoonful may be taken every hour. A mild cathartic of Podo-phyllin, Jalap, and Extract of Hyoscyamus, followed by an infusion of Dioscorea, is of advantage. If nausea continues after the use of the emetic, or if an emetic is not deemed desirable, an infusion of the Compound Powder of Rhubarb and Potassa, or of Peach-tree Bark, may be used, or the Sub-nitrate of Bismuth and Morphia.

If the inflammation is acute, or in either case, the application of cups, with or without scarifying, gives speedy relief from pain. These should be followed by hot fomentations of Hops, Stramonium, etc., or in some cases, where heat increases the suffering, by the cold water bandages.

Small doses of Leptandrin, with diaphoretic powder, may be continued throughout the treatment, as tending to relieve the congested condition of the viscus, and at the same time being unirritating. The fever being controlled within the first day or two by the sedatives, and the remission lengthened, as it will be, Quinia should be administered pretty freely (from ten to fifteen grains during the remission), with the effect of materially modifying the fever and inflammation. This treatment judiciously pursued, will effect resolution, in a large majority of cases, in from seven to nine days, and sometimes much sooner.

CHRONIC HEPATITIS.

Chronic inflammation of the liver was a very frequent complaint some years since, if we are to believe the history given us, and we have no reason to doubt it, as the continued administration of Mercury, for every disease, unduly stimulating this organ, might well produce this result. Since Mercury has gone out of date to such an extent we see but few cases, and these among persons above middle age, and who have been mercurialized according to the old formula. do not

deny that the disease might arise from other causes, like other chronic inflammations, but they are the fewest cases.

SYMPTOMS.—The symptoms met with in this disease are in part owing to the affection of the liver, and in part owing to sympathetic derangement of other organs. As illustrating the disease as described a score of years since, I will quote from Copland: "As chronic disease of the substance of the liver may present every grade, down from the acute state to the slightest deviation from the healthy function, so the symptoms attending it must vary, and assume more or less precise characters. In the *slighter* or *more obscure* forms, the nature of the disease is seldom evinced by distinct phenomena: various dyspeptic symptoms, flatulency, acid or aerid eructations; sometimes nausea, and less frequently vomiting; loss of flesh; muddy or sallow complexion; dry cough or embarrassed respiration, torpid state of the bowels; aching or pain in the back, or in the right hypochondrium, or a sense of weight and tenderness in the region of the liver; an irregular state of the bowels, or dark-colored, offensive, slimy, greenish, or watery, or muddy evacuations; dark or saffron color of the urine; slight acceleration of the pulse in the evening; increased heat and restlessness in the night; heat of the palms of the hands and soles of the feet in the evening, and chilliness in the morning; white, foul or rough tongue; bitter taste in the mouth; sickly or yellowish hue of the countenance; depression of spirits; and in some cases elevation of the shoulders, are the chief symptoms of hepatitis." In the very severe cases, the general symptoms may not be any more severe, but there is marked local evidence of serious disease.

The above symptoms are drawn to the life, as the disease was formerly viewed, and it will be easily perceived that the diagnosis of liver complaint could be made in every case of chronic disease, and the only difficulty would be to find anything else to treat.

DIAGNOSIS.—We will diagnose a chronic inflammation of the liver by the feeling of weight and tension, and dull pain in the right hypochondrium, and by the evidence of change of its secretion, in bilious diarrhœa, in its being thrown into the stomach, in its appearance as jaundice, or in the urine.

PROGNOSIS.—Chronic hepatitis can be readily cured, unless the inflammation has passed on to structural change, or resulted in degeneration.

POST-MORTEM EXAMINATION.—The liver is found in various conditions: at times large, soft, friable, and discolored; again, hard, contracted, and blanched. The morbid changes in the majority of cases, will range themselves under one of the two heads, hypertrophy or atrophy, as the symptoms during life indicated hypersecretion, or want of secretion. Atrophy of the liver is by far of most frequent occurrence, and is almost always attended by structural change. In some cases there is *induration*, the degree of density varying from that of the organ normally to almost a cartilaginous condition. The *cirrhosis* of Laennec is the last and severest form, the entire organ becoming wrinkled and shriveled, diminished to one-half its natural bulk, and of a yellowish or greenish-brown color.

TREATMENT.—A gentle excitant to the liver and bowels will take a prominent place in the treatment of the milder cases. This we might obtain from the Compound Tincture of Corydalis, already named, or from, *R*, Essl. Tincture of Podophyllum, 3ss; Essl. Tincture of Leptandra, 3j; Essl. Tincture of Hydrastis, 3ij; Neutralizing Cordial, 3iv; *M*.; in doses of a teaspoonful three, four, or five times a day; or an infusion of equal parts of Leptandra and Dioscorea has proven advantageous; or the Podophyllin pill, to keep the bowels open, will answer the purpose. If there is tendency to irritation of the stomach, the Peach-bark tea is an admirable remedy; or the Hydrocyanic Acid may be used. Alkaline diuretics, as the Acetate or Citrate of Potassa, are important parts of the treatment. I usually administer them with the Carbonate of Ammonia, or Chlorate of Potassa, in doses sufficient to keep the urinary secretion free.

The daily use of the bath, with brisk friction, should always be recommended, as it relieves irritation of the nervous system, and also acts as a derivant. The most important measure is the use of counter-irritants, without which we can not succeed in many cases. The irritating plaster is preferable to any other means, and should be continued as heretofore recommended, until the soreness, weight, and tension has entirely disappeared.

A bracing tonic treatment, with a moderate quantity of stimulants, aid in establishing health after the severer symptoms have passed off. The Iodine pill, heretofore named (*R*, Iodine, Extract of Nux Nomica, āā, gr. v; Hydrastin, 3ss;

Extract of Taraxicum, q. s.; M., and make thirty pills), sometimes answers an admirable purpose, in doses of one pill three or four times a day.

FUNCTIONAL DISEASES OF THE LIVER.

No function is so obscure as that of the liver, and yet none have been so patiently investigated; something, it is true, has been gained; we can determine accurately the constituents of bile, what it is formed from, when it is formed, and the conditions necessary to its elaboration; and yet we have no positive knowledge of what becomes of it, or of its use in the economy. This being the case, it is no wonder that the diseases of function are obscure; and being thus obscure, and investigated with difficulty, that ignorance should continually prate about disease of the liver, liver complaint, etc., connect it with every other affection, and adopt a treatment which, being applicable to this, was applicable to all diseases, as this formed a part of them. I well recollect the studied care with which the professors in *regular* colleges, some years ago, would undertake to prove the liver the seat or cause of all disease, and with what enthusiasm they would point to the remedy.

According to the best authority, we may consider the bile, first, as an excretion, which, if not removed from the blood, will give rise to a class of symptoms termed jaundice, and if continued for any considerable length of time will arrest the processes of life; second, as having some special function to perform in the act of digestion, so that if arrested or changed materially in quality, this function is impaired or entirely arrested; lastly, that it furnishes some material to the blood by absorption from the alimentary canal, which is essential to its normal condition. It will thus be seen that much derangement of function will be followed by severe derangement of the system; but fortunately these changes are of very unfrequent occurrence, instead of being the most frequent, as formerly supposed.

EXCESSIVE ACTION.

Hypersecretion of bile occurs occasionally as the result of irritation and congestion of blood. The bile being irritant to the intestinal canal, gives rise to increased peristaltic action and diarrhœa. It is termed bilious from its color, yellowish-brown or green, and from the fact that an excess of bile may be

found in the *feces* by analysis. An inverted peristaltic action may take place, the bile being thrown from the duodenum into the stomach, giving rise to nausea and vomiting, and being ejected by the mouth; this is attended by diarrhœa, and has sometimes been called bilious cholera. Bilious diarrhœa is attended with considerable pain of a twisting, griping character, with a feeling of soreness in the bowels; occasionally there is considerable febrile action, with dry skin and scanty secretion of urine. In some cases, the patient complains of pain in the right side and shoulder, with a feeling of tension and fullness in the right hypochondrium, and possibly enlargement of the liver. This excessive action may occur frequently as in cases of disease of the stomach, or it may occur but once.

TREATMENT.—If there is considerable irritation of the intestinal canal, with small, griping evacuations, a dose of the Compound Powder of Jalap and Senna, to thoroughly evacuate the bowels, will prepare the way for other medicine. This may be followed by Dioscorin, gr. vj; Opium, gr. iij; made into six powders and given every three hours. If the diarrhœa still continues after this, the Sub-nitrate of Bismuth in doses of five grains, may be added, or the more common astringents used. If there is a dry skin, with some febrile action, the hot Mustard foot bath, with the Compound Tincture of Serpentaria, may be used until perspiration is induced. If there is nausea and irritation of the stomach, an infusion of the Compound Powder of Rhubarb may be used as the vehicle for the medicines heretofore named.

Counter-irritation over the right hypochondrium should be employed, if there is soreness, and in the more severe cases, followed by hot fomentations to the side and over the abdomen. If there still remains a feeling of languor, with dry and constricted skin, hard pulse, headache, with coated tongue and dry or clammy mouth, the Acetate of Potassa, in doses of ʒss three or four times a day, with equal parts of Quinia and Hydrastin, in doses of five grains two or three times a day, will complete the cure.

DEFICIENT ACTION.

Torpor of the liver is of more frequent occurrence than any other functional derangement, and is probably due in a majority of cases to diseases of adjacent parts of the intestinal canal. It is frequently associated with dyspepsia, and hence

the prominent symptoms named under that head, were formerly considered to indicate torpor of the liver.

Thus, Copland, speaking of this derangement, says: "When the patient complains—after having enjoyed good health, or without having experienced on former occasions, either acute or chronic affections of the liver or stomach, or other severe disease likely to implicate the organ—of dyspeptic symptoms, with a costive or irregular state of the bowels, the stools being pale or clayey, and the urine dark or high-colored, or thick after having cooled; of want of appetite, drowsiness or pain over the eyebrows, lowness of spirits or hypochondriacal feelings; of flatulency of the stomach and bowels, a foul and loaded tongue, and a bitter and disagreeable taste in the mouth, particularly in the morning and of a sallow, dark and muddy appearance of the countenance or skin, but without any pain, febrile movement toward night, or thirst, or chills followed by heat, or hardness of the pulse, or fullness or tenderness in the region of the liver, it may be reasonably inferred that the functions of the liver are simply impaired."

Congestion of the liver will in most cases give rise to deficient action, and this may be usually determined by the fullness or tension in the right hypochondrium, especially if it has followed dissipation. We may recognize two causes, the one just named, and a simple depression or exhausted state of the vital energy of the organ, generally owing as above mentioned to disorder of adjacent parts. The symptoms given will embrace all cases, and though not all dependent upon the torpor of the liver, they are frequently associated with it.

TREATMENT.—When the torpidity is of recent occurrence there is but little difficulty in treatment. A mild cathartic of Podophyllin and Leptandrin, with the Extract of Hyoscyamus, given in small doses so as to produce one or two evacuations daily, is useful in all cases. Or, if the patient is stout and rugged, and the disease sudden in its appearance, they may be applied to produce a marked effect. These remedies may be used, lessening the dose daily, until the bowels become regular. The appetite may be improved as well as the innervation of the bowels and liver, by the administration of \mathcal{R} , Extract of Nux Vomica, gr. iv; Hydrastin, 3ss; Extract of Leptandrin, q. s.; M., and make thirty pills, of which one may be taken three or four times daily. If the skin is dry and

harsh, we obtain great benefit from the use of \mathcal{R} , Essl. Tincture Asclepias, Essl. Tincture of Dioscorea, āā , ʒss ; Hydrochlorate of Ammonia, ʒj ; Simple Syrup, ʒij ; \mathcal{M} .; in doses of a teaspoonful every three or four hours; or \mathcal{R} , Comp., Tincture of Corydalis, Gin Bitters, in equal parts, in doses of a tablespoonful four times a day, with ʒj of Acetate of Potash in the twenty-four hours.

If the torpidity does not yield readily, Sulphate of Quinia, associated with Hydrastin, in doses of ten or twelve grains daily, will be found advantageous; and if there seems to be a demand for Iron, the Prussiate may be added to the compound. The trunk should be sponged with salt water daily, and the bowels rubbed thoroughly, and occasionally if there seems to be undue tension and rigidity of the abdominal muscles, the wet bandage may be applied on going to bed at night.

NEURALGIA OF THE LIVER.

Neuralgia of the liver occurs occasionally in persons of a nervous habit, and who have had neuralgia in other parts of the body, or derangement of some of the abdominal viscera. It is most frequently produced by cold, fatigue, or over-excitement.

SYMPTOMS.—The pain usually comes on suddenly, and is intense in its character; sometimes the patients describe it at first, as being a stitch in the side, preventing their straightening up; being easier in a few minutes, they would flatter themselves that it had disappeared, but it would return again with more intensity, sometimes becoming almost unbearable. Some persons are so subject to it, that they can not undergo active exertion without bringing back the pain. In the severer cases, it continues for hours, the epigastrium and abdomen becoming tender, and the pain frequently passing to the right shoulder and spine.

TREATMENT.—The immediate treatment for a severe attack would consist in the application of a sinapism followed by hot fomentations, the Mustard foot bath, and internal administration of five-grain doses of Diaphoretic powder as often as seemed necessary. The pill of Podophyllin and Hyoseyamus, heretofore named, might be given to produce an action of the bowels. For its permanent removal, a tonic treatment should be adopted, especial attention being paid to overcoming constipation and irregularity of the bowels.

GALL STONES.

Gall stones are sometimes formed of inspissated bile in the ducts of the liver, or in the gall-bladder, but most generally of cholesterine, mixed with the coloring material of the bile. The causes of these formations are, to some extent, doubtless, to be found in the constitution of the bile, but in the case of cholesterine stones, principally to disease of the coats of the gall-bladder.

These concretions vary in size from a small pea to a mass as large as a hen's egg, or even larger. They are found in the gall-bladder, or in the ductus choledochus, and also in the intestinal canal, being sometimes round, but more frequently oval in form. They are only found in persons under middle age, and are said to be more frequent in women than in men. Among the predispositions to their formation may be named sedentary occupations, and close confinement, and associated to fatty degeneration of structure, and frequently to lithic acid deposits in the urine.

Gall-stones may remain within the gall-bladder for a long time without giving rise to any symptoms that may be noticed. If it produce inflammation and ulceration, the symptoms would be observed. It may pass down and close the cystic duct, giving rise to disorder of digestion, caused by loss of this receptacle of bile. It may pass into the common duct, and lodging give rise to jaundice, by obstruction. Lastly, they may pass through the ductus communis into the duodenum, and be discharged with the fæces.

"The *symptoms* of the passing of gall-stones generally come on suddenly, two or three hours after eating, with severe pain, like that of colic, in the region of the gall-bladder. The pain is not equal. There is constant, dull, aching pain, which is every now and then interrupted by a paroxysm so excruciating that the patient bends himself double, or rolls about the floor, at the same time pressing his hands firmly against the pit of the stomach, which sometimes eases the pain. These severe proxysms produce great exhaustion; the pulse become slow and weak, the face pallid, and the whole body is covered with a cold sweat. Together with these symptoms, there is distressing nausea and frequent vomiting. The matters vomited are very acid, and in cases of repeated vomiting, while the common duct is not closed, are bitter."—(Budd.)

The attack lasts a variable length of time, sometimes but a few moments, at others hours, and again, in rare cases, for several days, depending upon the number and size of the calculi that pass. When the attack is greatly protracted, and more than one passes through the duct, there is an interval of ease between; if continued long, symptoms of jaundice, with marked prostration, make their appearance, and there is severe derangement of other functions. In some persons these attacks occur at longer or shorter intervals for years.

Though excessively painful, the danger is not usually great. When a fatal termination results, it is caused by impaction of the calculus in the common duct, or by exciting inflammation or closure of the duct, and in rare cases by causing obstruction of the bowels and fatal ileus.

TREATMENT.—Various means of treatment have been proposed to facilitate and hasten the passage of these concretions. Some recommend the use of an emetic, which will answer a good purpose if given in nauseating doses until the system is completely relaxed, and then carried to free emesis, large quantities of warm water being taken to favor its action. Dr. Prout recommended the giving of large draughts of hot water containing Carbonate of Soda in solution, in the proportion of one or two drachms to the pint. It was urged that the alkali counteracted the acidity of the stomach and thus relieved some of the most distressing symptoms, and acted as a fomentation to the part. Full doses of Opium have been given with advantage for the relief of the pain; it has been best used with Hydrocyanic Acid, which relieving irritation of the stomach, enabled the Opium to be retained.

As a local application the hot fomentations of Hops, Stramonium or Poppy-heads, will often relieve the suffering. They should be applied as hot as can be borne, and frequently renewed. If they fail of giving relief, we may resort to the application of cold, as a towel wrung out of ice-water, or pounded ice in a bladder. Sometimes the local application of the Tincture of Aconite with Chloroform gives relief.

If these measures fail, the vapor bath, or alcoholic vapor bath may be used, with the free employment of an infusion of equal parts of Dioscorea and Verbascum, or either of the agents. These means should be carried to the production of copious diaphoresis and complete relaxation. As a last resort,

and a most efficient one, use Chloroform as an anæsthetic to such an extent as to control the pain.

The pain ceasing for some time leading to the inference that it had passed into the intestine, a mild cathartic of Compound Powder of Jalap and Seuna, with copious injections of warm water, should be used to hasten its removal, and the discharge of the accumulated bile. Afterwards, small doses of Leptandrin and Dioscorin, with Hydrastin, will be sufficient in most cases to remove the condition upon which their formation depends. Various remedies have been proposed as a solvent of gall-stones in the bladder, but with very little or no success; the one most relied on, was a mixture of three parts of Sulphuric Æther with two of Essence of Turpentine; this was very extensively used at one time, but very seldom latterly.

JAUNDICE.

Jaundice should be considered as only a symptom, and may occur in most affections of the liver. It consists of the retention and absorption of the coloring matters of the bile, and their deposit in various structures, principally the skin and conjunctiva; occasionally it is deposited in the deeper structures, as of the eye, giving rise to yellow vision; in the nails, and in internal organs. It is supposed to arise in two ways: 1st, by some impediment to the free passage of bile from the lobules where it is secreted to the duodenum, and its consequent absorption; and 2d, by defective action on the part of the liver, the materials of the bile not being removed from the blood.

We may classify the causes of jaundice as follows: *a*, from hypersecretion of bile; *b*, from congestion of the liver and portal system, *c*, from chronic alterations of the structure of the liver, preventing secretion or the free discharge of bile; *d*, from spasm or temporary obstruction of the biliary ducts; *e*, from obliteration or compression of the biliary ducts or gall-bladder; and lastly, from disease of the duodenum, partially or entirely occluding the ductus communis.

SYMPTOMS.—The symptoms of jaundice vary very greatly, depending upon the course, the extent of disease of the liver, and its complications. Usually, there is disturbance of the bowels, colicky pains, constipation, the feces being clayey, pale,

and scanty. The mouth is dry, has a bad taste, tongue coated, and sometimes nausea and pain in the head. The yellow tinge usually makes its appearance in the eyes, and gradually extends to all parts of the body, the color being deepest in the folds and wrinkles of the skin. Usually the skin is harsh and dry, and the urine high-colored, at first yellowish, but afterward saffron-colored, frequently coloring the clothing that it comes in contact with. "The patient generally complains of a severe, heavy, or lancinating headache, with a sense of heat, particularly in the forehead; and he frequently falls into a state of despondency or melancholy, or becomes morose. There is sometimes lethargy and frequent watchfulness. The tongue and palate are coated with a yellowish sordes, and a bitter taste is felt in the mouth. The appetite is extremely irregular, sometimes being entirely lost, at other times ravenous. Thirst is usually present. Pain, weight, or a dragging sensation and tenderness, are often felt at the epigastrium; frequently with flatulence and eructations, nausea, difficult or painful digestion, and vomiting of a bitter, acrid and somewhat dark fluid. In some cases acute pain rises in the course of the common duct, and increases as it reaches the epigastrium, with more or less uneasiness in the region of the liver and top of the right shoulder, or beneath the right scapula, or between the shoulders."—(Copland.)

In some cases febrile action is a marked feature of the affection, the fever being remittent or intermittent in its character, and attended with weight and tenderness in the right side, and marked derangement of the digestive functions; these cases are generally acute. In others it comes on slowly, with symptoms of marked cachexia and prostration. The skin changes its color very gradually, but at last, after weeks, or sometimes months, becomes of a yellowish-green or bronze color; in this case the disease will be found to depend on serious structural lesion of the liver. In others, the symptoms are developed with rapidity; the skin becomes intensely yellow, or yellowish-green; there is great prostration of strength, languor, bitterness, great depression of the nervous system, and finally delirium or coma, the disease frequently terminating fatally. Or it may come on very slowly, the skin gradually gaining a dull-yellowish tinge, the symptoms being those described under the head of deficient secretion or torpor of the

liver; in this case, the jaundice is from retention of the materials of the bile in the blood.

DIAGNOSIS.—It is very easy to recognize jaundice, the peculiar appearance of the patient telling the story at the first glance; but it is a difficult matter to determine the condition upon which it is dependent.

PROGNOSIS.—The prognosis should be favorable in those cases in which it is not dependent upon structural disease of the liver. If caused by this, it will depend upon the character of the disease, and the prospect of its removal.

POST-MORTEM EXAMINATION.—In some cases, no apparent lesion can be found to account for the death or the jaundice. In others, the liver will be found variously changed: congestion, inflammation, suppuration, atrophy, cirrhosis, closure of the gall-ducts, presence of gall-stones, hydatids, malignant disease, etc., will account for the symptoms.

TREATMENT.—The treatment of this affection will have to be varied, and adapted to the disease or condition of the system giving rise to it. It is generally supposed that all that is necessary is to give some medicine that will act on the liver, and increase the secretion of bile; and for this purpose our old-school friends give Mercury, the new-school Podophyllin—and in many cases to the detriment of the patient.

If there is a feeling of fullness in the region of the liver, with tenderness on pressure under the false ribs and epigastrium, with some febrile action, I should order cups to the side, followed by hot fomentations if the disease was acute, and the irritating plaster if chronic; the warm or spirit vapor bath may be used in acute cases. To favor diaphoresis, an infusion of *Asclepias* and *Dioscorea*, with the Diaphoretic powder may be employed; and to act on the bowels, equal parts of Compound Powder of Jalap and Bi-tartrate of Potassa. This may be followed by a solution of Acetate of Potassa, and small doses of Podophyllin and Leptandrin, as, \mathcal{R} , Podophyllin, Leptandrin, āā , gr. ij; Lactin, ʒj ; triturate thoroughly, and divide into twenty powders, of which one may be given every three or four hours. If there is continued tendency to fever, with arrest of secretion, Quinia and Hydrastin may be used as heretofore recommended.

If the disease comes on slowly, and has lasted for some time, the vegetable alteratives, with saline diuretics, the

judicious use of tonics, and the thorough use of the bath, will be the principal means. If there should be tenderness on pressure over the liver, the irritating plaster will materially aid the treatment. Being satisfied that there is no structural lesion, making it impossible for the liver to respond to the action of remedies, we may employ small doses of Podophyllin as above named. In these cases, I have used the Essl. Tinct. of Leptandra and Dioscorea with the Compound Syrup of Rhubarb and Potassa, also the Nux Vomica with Hydrastin as heretofore named.

If from exuberant secretion of bile, as evidenced by bile in the feces, and sometimes by bilious diarrhœa, the administration of Leptandrin, Dioscorin and Opium, with cups to the side, will be appropriate. If from congestion of the portal circle, manifested by bloated countenance, livid lips and absence of bile in the feces, the treatment should be commenced with a saline purgative, the use of the hot foot bath, and other means to determine to the skin, and saline diuretics. These means may be followed by agents that act directly on the liver, as the Leptandrin and Podophyllin. The Chlorate of Potassa with Extract of Conium sometimes answers an admirable purpose.

If there is manifestly torpor of the liver, the jaundice being slight, the common Comp. Podophyllin Pill may be used, and frequently with the result of speedily removing the difficulty. When the cause is obscure, the indications should be met as they arise, all harsh and debilitating measures being studiously avoided. The diet should be bland and easily digested, the bowels kept soluble by an occasional laxative pill; the daily bath, with brisk friction employed; and care used to keep the kidneys acting normally. Much may be accomplished in this way, while if harsh measures were adopted, the case might speedily terminate fatally.

ACUTE ENTERITIS.

By this I intend to designate an acute inflammation of all the coats of the small intestine, in contra-distinction to *mucosenteritis*, or an inflammation confined to the mucous coat. Fortunately it is not of very frequent occurrence, as it is one of the severest and most fatal diseases of the intestinal

canal. It may be caused by cold, by irritating articles of food, or follow other affections of the bowels.

SYMPTOMS.—In some cases it may be preceded by irritation of the intestinal canal and diarrhœa, but usually it manifests itself first as a soreness and tenderness about the umbilicus, with constipation. Chills or rigors soon make their appearance, followed by slight febrile reaction; they may continue thus for two or three days, or the first chill may be followed by a remittent or continued fever. Sometimes the fever runs high for the first day or two, but passes into exhaustion with great rapidity. The pain and tenderness felt at the beginning, are now very severe, the patient can bear no pressure over the abdomen, which is much distended. The abdominal walls are hard, and sometimes seem knotted; and the patient lies upon the back, and draws the feet upward to take off their tension. The patient feels as if the bowels should be moved, and not unfrequently insists on trying to evacuate them, the straining greatly increasing his sufferings. The constipation is obstinate, and is usually increased, and irritability of the stomach and vomiting excited, by the injudicious use of cathartics in the early stage of the affection. As the disease advances to a fatal termination, the pulse becomes thready and weak, respiration quick and anxious, the tongue coated a dirty-brown, with sordes on the teeth, the bowels much swollen and exquisitely tender except shortly previous to death, when all sensibility disappears, and the patient's mind wanders or is sometimes perfectly clear, hoping for relief even to the last.

DIAGNOSIS.—We will diagnose this affection from bilious or lead colic, or intussusception, by the rigors, active febrile action, and evidences of inflammation upon examining the abdomen. From muco-enteritis it may be determined by the obstinate constipation. A careful examination should be made to determine that the symptoms are not the result of hernia.

PROGNOSIS.—Though a very serious disease, we may expect to save a considerable proportion of our patients, if is properly diagnosed at the commencement. If, however, cathartics have been freely employed in the early stage of the affection, the prospect is not very flattering.

POST-MORTEM EXAMINATION.—The entire thickness of the intestine is usually found to present evidences of inflammation, or determination of blood. There is more or less effusion under the peritoneal coat, and sometimes from its free

surface; occasionally causing adhesions of the intestines to the adjacent parts, and in some cases perforating the bowels; other organs may be incidentally affected.

TREATMENT.—Under no circumstances should an active or, indeed, any cathartic be given until the more active symptoms have been removed. We direct at first, cups and scarification around the umbilicus, followed by hot fomentations to the entire abdomen, or if unpleasant to the patient, the cold, wet bandage. If there is a frequent desire to evacuate the bowels, a large enema of warm water, with Conium or Opium, may be used with advantage. Opium, in doses of one grain every three hours, or sufficiently often to control the pain, should be employed, and the special sedatives in the usual doses to relieve the fever. A solution of the Chlorate of Potassa with the Extract of Conium is highly recommended to assist in overcoming the contraction of the intestine; I would prefer, however, the free use of *Dioscorea* or *Epilobium* as agents better calculated to fulfill the indications.

If there is nausea, it may be treated with small doses of the Compound Powder of Rhubarb in infusion, or an infusion of the bark of the Peach tree, or Hydrocyanic Acid, and the application of a sinapism to the epigastrium. If there is hic-cough or singultus, raw Brandy in small quantities will answer the purpose.

Relief may be sometimes given from the extreme distension of the bowels by using copious injections of warm water, with the addition of a small portion of Turpentine and Assafœtida; if, however, it increases the pain, it should be discontinued. As soon as the irritation commences to pass off, the bowels may be moved with the Compound Powder of Jalap as an enema, and Sweet Oil internally.

The food should be of the most bland description, and such as would leave but little debris. In the severest cases, Milk and Limewater will answer the best purpose. The patient must lie quiet in bed, in one position, and all causes of excitation must be carefully avoided.

MUCO-ENTERITIS.

Inflammation of the mucous membrane of the intestinal canal may result from cold, or from acrid or irritating ingesta.

It may be confined to the small intestine, or affect the stomach, gastro-enteritis; or the large intestine, dysenteric-diarrhœa.

SYMPTOMS.—It usually makes its appearance with tenderness about the umbilicus, more or less pain, and a desire to evacuate the bowels frequently. There is diarrhœa, the operations being sometimes large, at others small, but never seem sufficient or gratify the desire. Frequently the patient feels the tendency to a motion, but nothing passes, or does not pass until they have been to stool sometime. They vary in character, being usually yellowish, thin, acrid, and combined with more or less mucus. There is more or less constitutional disturbance, a harsh, dry skin, scanty secretion of urine, hard pulse, and coated tongue. Sometimes there is pain in various parts of the body, and marked headache.

If the stomach is involved, there is nausea with occasional vomiting, the stomach being irritable, and frequently rejecting all medicines that are given. If the larger intestine is involved, there are the tormina and tenesmus of dysentery in addition to the symptoms of this affection, the stools being sometimes diarrhœal, sometimes dysenteric. If it continues for a considerable length of time, ulceration may occur, the operations containing pus, and the system very much exhausted.

Inflammation of the glands of the intestine may occur as a primary disorder, exhibiting the following symptoms: "At first of slight disorder of the digestive functions, consisting chiefly of colicky pains, want of appetite, and relaxation of the bowels, ceasing and recurring from time to time. There are also borborygma, flatulence, mucous stools, a relish chiefly for the more stimulating articles of food, a white or loaded tongue, a soft and languid pulse, and a turbid state of the urine. In other cases, the symptoms are more severe at the commencement. The appetite is lost, the tongue presents a grayish-white or yellowish coating, and is somewhat red at its point and edges; the mouth is clammy, occasionally aphthous, with an insipid, sickly, nauseous and sour taste; the breath is disagreeable and fœtid, and there is tenderness upon firm pressure around the bowels."—(Copland.) In the more severe cases, there is a low form of fever, with great prostration, exhibiting at last all the symptoms of typhoid disease, which it may be truly called.

DIAGNOSIS.—We diagnose mucous inflammation of the small intestines from simple diarrhœa, by the manifest symptoms of constitutional disturbance and inflammation.

TREATMENT.—The administration of astringents to check the diarrhœa, does not answer well in this case, usually increasing its severity. As the diarrhœa is dependent upon inflammation, it is evident that this should be first removed. For this purpose I am in the habit of recommending the warm bath when convenient, the warm foot bath always, with the administration of a diaphoretic, as Compound Powder of Ipecac and Opium, or Tincture of Asclepias with Tinct. Opii Camph., or a simple infusion of Pennyroyal. The Compound Powder of Rhubarb in infusion, or the Neutralizing, Cordial may be used in doses sufficient to change the character of the operations, and then in small doses until the discharge ceases.

The *Epilobium* will be found a most efficient agent in these cases, associated with the means above named. The administration of equal parts of Dioscorin, Leptandrin, and Geraniin, in doses of two or three grains, in connection with the special sedatives, is very good treatment. If there are griping, colicky pains, Salad Oil taken pretty freely to move the bowels, and followed by an opiate, answers a very good purpose. The White Liquid Physic (℞, Sulphate of Soda, ℥viij; dissolve in Water, Ojss; and add Nitric and Muriatic Acid, āā, ℥j), in doses of a tablespoonful every hour, with Simple Syrup, until it moves the bowels, and then followed by an opiate, will occasionally prove useful, especially in cases of irritation of the stomach with nausea and vomiting, or when there is tendency to dysentery.

The inflammation having subsided, if diarrhœa still continues, we may treat it with astringents, as we would a case of simple diarrhœa. If there should be a tendency to chronic enteritis, the irritating plaster should be applied to the umbilical region until relief is obtained. If the disease exhibits marked evidence of periodicity or the fever should be persistent, use Quinia in full doses; or if there are gaseous accumulations, with fœtid eructations and discharges, the Chlorate of Potassa, Soda or Lime.

CHRONIC ENTERITIS.

Chronic inflammation of the small intestines occurs as the result of the acute disease, or it may be gradually developed during diarrhœa. It constitutes chronic diarrhœa, and may occur at all ages and in all climates, but is more frequent in Northern persons who have spent the warm season in the South. It may extend to the stomach, giving rise to symptoms of dyspepsia, or to the large intestine, inducing dysentery.

SYMPTOMS.—In chronic diarrhœa we find the patient having a variable number of fluid or semi-fluid evacuations from the bowels in the course of the day. They may or may not be attended by colicky pains about the umbilicus, and more or less tenesmus. The discharges are of variable color, sometimes light, at others dark-brown, greenish, yellow or clay-colored, watery or pultaceous, containing mucus, pus, shreds of lymph, and sometimes blood. Occasionally they are large, but most usually of moderate size. The patient is very much reduced in flesh, has lost strength and energy; the appetite is poor and variable; the food does not seem to digest well; there is dryness and constriction of the skin, which is yellowish or sallow, and seems shriveled, with imperfect action of the kidneys. The nervous system is deranged, the patient being restless, irritable and nervous, usually not sleeping well at night, and troubled with occasional wandering pains and headache. Sometimes we find a marked remittent fever with it, and in the later stages hectic fever and night sweats.

DIAGNOSIS.—The diagnosis of chronic enteritis is easy; the long continuance of the diarrhœa, the peculiar character of the discharge, the tenderness of the bowels, and general derangement of the system, are very marked symptoms.

PROGNOSIS.—The prognosis is favorable in those cases in which the disease is not of long duration, and in those in which there has not been much disturbance of the general health. When the system has suffered severely, all the functions being deranged, the prognosis is doubtful.

POST-MORTEM EXAMINATION.—The intestine is found in various conditions—sometimes thickening of the mucous membrane with discoloration and superficial ulceration, at others it seems to be softened, with a flocculent pultaceous material attached to it, or there may be deep ulceration or thinning of the mucous membrane, or dilatation or stricture, and in some

cases perforation. Occasionally, from inflammation of the serous coat, the intestines are found tied together by a false membrane, or adherent to the other viscera.

TREATMENT.—A very important point in the treatment of chronic diarrhœa is to establish all the secretions, and thus relieve the mucous membrane. Thus, the judicious use of the bath with friction, simple cold, tepid or warm water in some cases; the alkaline bath in others; when there is deficient circulation and tendency to coldness of the extremities, the addition of Capsicum to the water; or if the skin is relaxed and flabby, a decoction of tonics and astringents, as Hydrastis, Cornus or Quercus, are valuable means. A solution of Chlorate, Acetate or Citrate of Potassa with Essence of Juniper, or similar combination, answers a good purpose to stimulate the kidneys to action.

If there is torpor of the liver, and congestion of the portal circle, this will have to be overcome; for, as long as it continues there will be an excess of blood in the diseased structure. For this purpose we use the Leptandrin in doses of two or three grains three times a day; or the Podophyllin well triturated with Loaf Sugar, and given in small doses. Some times I prefer the White Liquid Physic referred to in the preceding disease, given in doses sufficient to stimulate the liver to action and change the character of the evacuations. A friend of mine places great confidence in this, and follows it with Quinia and Hydrastin, repeating the Physic whenever the discharges look bad.

I have had most marked success with the Epilobium in very severe cases. I employ it in infusion, adding Brandy and sweeten to render it pleasant. Of the strong infusion I give a tablespoonful an hour, and continue it until the discharges are checked. The Geranium may be used in the same way, after the administration of the Leptandrin, as may also the Marsh Rosemary. The Persulphate of Iron answers an excellent purpose in some cases, in doses of from two to five grains four times a day; of course it must not be given with the vegetable astringents. The Comp. Powder of Rhubarb and Potassa gives a valuable adjunct to these means, and is best used in the form of infusion.

Counter-irritation can not be dispensed with. In the severer cases, I employ the irritating plaster used as heretofore recommended, and persisted in until the disease yields. If not so

severe, I sometimes use Turpentine stupes, or a strongly stimulating liniment. In others, the Vinegar bandage, worn constantly, or only at night, answers the purpose; and again, the wet bandage may be used at night. If there is irritation of the spine, with tenderness, counter-irritation must be employed to remove it.

The bitter tonics and stimulants answer a good purpose after we have modified the diseased action, and improved the secretions. Quinia and Hydrastin are best where there is febrile action in the afternoon and evening; but in other cases, I usually employ, *R*, Essl. Tincture of Collinsonia, Essl. Tincture of Cornus, Glycerin, Simple Syrup, āā , ʒij ; in doses of a teaspoonful every three hours. If there is derangement of the stomach, with increased secretion of mucus, with a bad taste in the mouth and nausea, use the Oxide of Zinc in doses of one grain four or five times a day. The Gin Bitters are an excellent stimulant, when this is required.

Strict attention should be given to the patient's diet, that it be nutritious, easily digested, and leave but little debris. Still, we find many cases in which the appetite seems to be the best judge of what is beneficial to the patient. Gentle exercise in the open air, and a residence on high ground, is of marked benefit.

SPLENITIS.

Diseases of the spleen are somewhat obscure, the symptoms not being very well marked, and the derangements of function consequent upon it being as various. If we except acute inflammation of this viscus, there are no other diseases that will present more uncertain symptoms. We can readily see why this is, if we call to mind its situation and structure, and what we know of its function. Situate in the ~~right~~ ^{left} hypochondrium, it is readily moved in all directions, and can occupy a less or greater space without any or but slight derangement of function of adjacent parts. In structure it is adapted to permit of great distension and enlargement, and a greatly increased or diminished circulation of blood. Its function is very obscure; all that we know definitely is, that it serves as a diverticulum for the blood of the portal circulation, and in some manner caters to the liver, preparing the blood for it. In addition, it would seem to exert a devitalizing influence upon the red-

globules, they being broken down in the splenic vein to a greater extent than in other portions of the system, and to generate white-globules, they being in excess in this vein. The last proposition is still further proven by the fact that in cases of leucoeythemia the spleen is invariably hypertrophied.

SYMPTOMS.—*Acute splenitis* most generally results from injury though it may in some cases arise during disease of the liver or intermittent fever. If it does not arise during intermittent fever, a remittent fever invariably comes up with it. The first evidences of disease make their appearance with a marked chill or rigor, the patient complaining of a sense of fullness and deep-seated pain, or soreness in the region of the spleen. Febrile action follows the chill, and is usually pretty severe. The tongue is heavily coated at the base, the mouth clammy and frequently bitter; there is nausea and vomiting, sometimes of bile; headache is a prominent symptom—dull, heavy, with occasionally sharp, shooting pains, the bowels are costive, the skin hot and dry, and urine scanty and high-colored. With the development of febrile action, the pain in the side becomes more severe, and is tensive and tearing in its character, shooting over to the stomach and liver, and upwards to the back and left shoulder.

The fever is almost always remittent, the remissions occurring in the early part of the day. Frequently they become more and more obscure, until it seems that the fever is continuous. If it progresses without amendment, we find the patient becoming more and more prostrated, the digestive organs very much deranged, as is evidenced by the brown coating of the tongue, entire want of appetite and frequent nausea, offensive evacuations from the bowels, etc., and the fever assuming a typhoid type.

Chronic splenitis is usually associated with intermittent fever, or disease of the stomach or liver. It comes on slowly, and is evidenced by a feeling of tension in the region of the spleen, soreness on deep pressure, and an occasional sharp pain, which seems to catch the patient, and suddenly arrest all exertion.

Hypertrophy of the spleen, or ague cake, may be considered as the result of, or attendant upon sub-acute or chronic inflammation. It is almost invariably an attendant of protracted cases of intermittent fever, the associate organs, the stomach and liver, being more or less affected. The size of the spleen varies very greatly in these cases, sometimes increased to

twice its original size, at others enlarged so as to occupy the greater portion of the left side of the abdomen. In these cases there is a feeling of weight, tension and distress, hardly amounting to pain, unless the patient takes active exercise, when there are the sharp catches heretofore named; in consequence of these he is frequently unable to take as much exercise as his health would permit him.

When the result of intermittent or remittent fever, we find the patient decidedly cachectic; the skin sallow, wrinkled and harsh, urine variable, sometimes scanty and high-colored, at others, very abundant, and of low specific gravity; the bowels irregular, sometimes constipated, at others diarrhœa; frequently a good appetite, but the food imperfectly assimilated, so as not to increase the strength, and more or less disturbance of the nervous system manifested by pain in the head, back and limbs, restlessness at night, bad dreams, lowness of spirits, etc. When idiopathic, the patient notices first the enlargement and uneasy sensation in the left side, and as the enlargement increases, there is gradually developed the symptoms above named.

DIAGNOSIS.—The diagnosis of acute splenitis is made from the location and character of the pain, the tenderness on deep pressure, and the marked constitutional disturbance. The sub-acute and chronic forms are more difficult to determine; the deep-seated pain and soreness, with enlargement, the inability to take active exercise on account of the sharp, catching pain in the side, and very marked derangement of the digestive organs, with general cachexia, are the most predominant features.

PROGNOSIS.—The prognosis is favorable in a majority of cases, of either form of the disease. Occasionally suppuration occurs, marked by rigors and low ataxic fever, in which recovery is impossible. In enlargement of the spleen, the result of intermittent fever, we can usually assure the patient of recovery; but if the splenic enlargement was the original affection, the cachectic symptoms depending on it, the result will be fatal in a majority of cases.

POST-MORTEM EXAMINATION.—In inflammation of the spleen, it is usually found enlarged, and its external coat of a deeper or browner red than in health. The structure is generally very much softened, breaking down under the slightest pressure. The internal structure is frequently grayish and soft-

ened, and if suppuration has occurred, the pus will be found in isolated portions within the trabecula, or in some cases forming an abscess, and surrounded by a well-defined pyogenic membrane. In cases of hypertrophy, we frequently find the structure of the organ unchanged; at other times there has been more or less deposit of plastic lymph, which has become organized.

TREATMENT.—Acute splenitis should be treated in a very similar manner to hepatitis. If there is nausea and vomiting, an emetic should be administered to thoroughly free the stomach and quiet it. Following this, we would give the special sedatives in doses sufficient to control the fever, and when this has begun to subside, add a diaphoretic and an alkaline diuretic. If the bowels are obstinately constipated, and there is deficient action of the liver, I would give a cathartic of Podophyllin and Leptandrin, otherwise the bowels should be opened with Compound Powder of Jalap, or similar remedy. Wet or dry cups, followed by hot fomentations, are the best local applications to the region of the spleen, but the action of the remedies named, may be much facilitated by the use of the general alkaline sponge bath, and hot Mustard foot bath. With the first appearance of remission, the Sulphate of Quinia with Prussiate of Iron, or Hydrastin, should be administered in full doses, and repeated daily until the fever is arrested.

In the *chronic* form of the disease, I have obtained the best results from a course of treatment calculated to stimulate all the excretory organs. Among the most prominent remedies are the alkaline diuretics, Acetate and Citrate of Potassa which may be given in solution, in quantities of from ʒij to ʒiij, in the course of twenty-four hours; at the same time, I usually administer the vegetable alteratives, with bitter tonics, as R, Compound Tincture of Corydalis, ʒiijss; Essl. Tincture Hydrastis, ʒss; in doses of a teaspoonful four times a day. If this is not sufficient to overcome constipation, a small portion of the Tinctures of Podophyllum and Leptandra may be added; or, R, Essl. Tincture of Cornus, Essl. Tincture of Rumex, Essl. Tincture of Collinsonia, āā, ʒj; Essl. Tincture of Podophyllum, ʒij; Glycerin, Simple Syrup, āā, ʒjss; M., and give in doses of a teaspoonful every three or four hours. If there should be diarrhœa, the use of the Syrup of Rhubarb and Potassa, with Paregoric, and a vegetable astringent, usu-

ally answers the purpose. The persistent use of the bath, as heretofore recommended, is not to be neglected.

Just as soon as we have made a decided impression on the secretions, and they are commencing to act well, we may use Quinia with the most marked advantage; but previous to this it would have been injurious rather than beneficial. When used, I usually give it in quantities of from twelve to fifteen grains, sometimes more, during the forenoon. If it seems to check the secretions, or causes uneasiness or debility, its use should be stopped, and the other medicines continued.

Hypertrophy of the spleen is treated in the same manner, depending almost entirely on the alkaline diuretics, and the judicious use of baths at first, then adding the vegetable alteratives and bitter tonics, and finally, when secretion is tolerably freely established, bringing the Quinia to bear on the disease. The most marked success will generally follow this treatment, whereas, if reversed or mixed up, it will frequently fail.

In chronic inflammation or hypertrophy, we occasionally find a persistent derangement of the stomach, marked by foul tongue, bad breath, variable appetite, and more or less nausea and vomiting. While this continues, measures for the relief of the diseased spleen will have no effect. In such cases, if not removed in a reasonable time by the alkaline diuretic, I should advise the use of a thorough emetic two or three times a week. In persistent cases, we obtain great advantage from the irritating plaster, as in other chronic inflammations.

DISEASE OF THE PANCREAS.

The pancreas have been found diseased on post-mortem examination, but it has been very rarely determined during life. Situated so deeply in the abdomen, and covered by the stomach and intestines, seemingly without sympathy with other parts, we can well understand why the symptoms should be obscure. The function of the organ is not very well understood, but we know that it exercises a very important influence in changing chyme into chyle, and possibly the changing chyle into blood. According to Bernard, the pancreatic fluid is the principal agent in the digestion of fatty matters. This is proven by the fact that when the pancreas is diseased, or its duct obstructed, so as to arrest the formative influence of its secretion, great emaciation and anæmia occur.

Acute inflammation is said to be characterized by an acute and deep-seated pain below the pit of the stomach, and extending back and below the left shoulder-blade. There is a sense of anxiety at the præcordia, with burning and constriction in the stomach, dryness of the fauces, and thirst. Occasionally there is derangement of the stomach, with vomiting of a ropy, mucous fluid; sometimes a mucous diarrhœa occurs. With these symptoms there is a more or less severe symptomatic fever.

The more chronic forms of inflammation are accompanied by the same deep-seated pain, though not so severe, and the tension and heat are aggravated by taking food. In addition, there are various dyspeptic symptoms, as flatulence, pyrosis, heartburn, etc. In other structural lesions, there is more or less impairment of function, resulting in imperfect digestion and assimilation of food, and gradual marasmus. Cancer of the pancreas is the most prominent disease, and the one most frequently met with.

TREATMENT.—Inflammation of the pancreas should be treated as any inflammatory disease of other organs. We reach an internal inflammation through the blood, and arrest it by checking the rapidity and equalizing the circulation, and by getting free action of the excretory organs; this can be accomplished in inflammation of the pancreas, as well as of other organs. We know of no remedy that acts specifically upon the pancreas, so that it would not benefit us if we could determine its functional diseases.

DIARRHŒA.

Diarrhœa is frequently symptomatic of other affections, or indicative of disease of the small intestines, as in the cases just noticed; but it is also, in many cases, an idiopathic disorder. We may divide it with advantage into the following forms: 1st, From irritation of the intestinal canal; 2d, From increased secretion of bile; 3d, From atony of the intestines; 4th, From congestion of the portal veins, and determination of blood; 5th, From increase of mucous secretion; and 6th, From imperfect digestion.

SYMPTOMS.—Diarrhœa arising from *irritation* may be caused by acrid and irritating ingesta, or result from exposure to cold,

or from the arrest of other secretions. The operations are copious and feculent, sometimes preceded by griping pains, and occasionally attended with an urgent desire to go to stool. The tongue is usually loaded, an unpleasant sensation at the stomach, loss of appetite, and frequently a tendency to headache. As the diarrhœa continues the strength is materially affected, though there is no febrile action at any time.

Bilious diarrhœa results from hyper-secretion of bile, and may arise from the causes named above. It is rather a common form of the disease in the summer, and in hot climates, and in intemperate persons. The evacuations are at first feculent, but green or greenish-yellow, and pultaceous; but as the disease advances, are more profuse and watery. If it continues for some time they frequently contain more or less mucus, sometimes in loose pieces, at others in thin, glairy and gelatinous pieces. There is sometimes a feeling of tension in the right side, and soreness on pressure; and there is considerable griping pain attending and preceding the discharges from the bowels. The skin is dry and harsh in many cases, and the urinary secretion scanty and high-colored; the tongue coated, a bitter taste in the mouth, and loss of appetite, with sensation of nausea and disgust.

Atony of the intestinal mucous membrane gives rise to diarrhœa by the relaxed vessels allowing their contents to escape. In all diseases attended with great loss of power, we have examples of such profluvia, as in asthenic bronchitis, the œdema of local debility, etc. In this case, the operations are large and watery, or in some cases a watery mucosity, unattended with pain or suffering of any kind. The discharges pass so freely that the patient has sometimes but little notice to prepare for them, or they pass almost involuntarily. There is loss of appetite to some extent; the skin is cool, pale, soft and relaxed, with perspiration; the urine light-colored and of low specific gravity. The debility is marked.

Determination to the intestines, accompanied by partial congestion, gives rise to a diarrhœa, attended by large and fluid evacuations. There is more or less soreness of the bowels and griping pains preceding the operations. The stools are of every shade of color, from pale clay to a greenish, or brown color, and are sometimes preceded by nausea. The skin is usually dry and harsh, the pulse hard, the tongue coated,

appetite gone, urine scanty, some headache, with tumid bowels and some pain or soreness on pressure.

Increased mucous secretion gives rise to that form of diarrhœa termed catarrhal. It occurs more frequently in old persons and children, though it may affect all ages. The stools consist of mucus with a small proportion of feculent matter, sometimes large, thin and gelatinous, looking like semi-transparent mucilage, at others, thick and white, or colored by the feces. At first it gives rise to but little disturbance, but as it continues, the strength fails, the skin becomes dry and harsh, the appetite much impaired, with great loss of strength and emaciation.

Diarrhœa from imperfect digestion is known by the name of *lientery*; it is most frequently observed in children, and rarely in adults. It is undoubtedly owing to imperfect action of the stomach, and increased peristaltic action of the bowels. The evacuations consist in part of feces, and in part of food, which is discharged from the bowels in nearly the same condition in which it passed into the stomach. Sometimes there is pain attending the operations, but at others none, except a feeling of rawness and soreness of the rectum; if it continues, the patient soon exhibits the effects of arrest of digestion, in a marked marasmus, terminating in stupor and death by exhaustion. During the entire period the appetite is usually good, sometimes voracious, and there is no manifest lesion of any other function.

DIAGNOSIS.—Diarrhœa is very easily diagnosed, and an examination of the discharges and the symptoms will determine its character; this should always be done, as the injudicious use of astringents sometimes gives rise to serious difficulty.

TREATMENT.—Common feculent diarrhœa frequently requires no treatment, as when the irritating matters are removed, it ceases itself. If, however, there is much griping, with colicky pains, the Compound Powder of Jalap and Senna may be administered in *scruple* doses every four hours, until there is a free evacuation and a cessation of the pain. Following this, if necessary, we may give Compound Syrup of Rhubarb and Potassa, ʒjss; Tinctura Opii Camphorata, ʒss; M., a teaspoonful every hour or two; or if necessary, an astringent, as the Tincture of Catechu, Kino or Geranium.

In bilious diarrhœa, I usually employ ℞, Leptandrin, Dioscorin, Geraniin, āā, grs. x; Opium, grs. v; M., and divide into ten powders, of which one may be given every two hours. Or, Essl. Tinct. Leptandra; Essl. Tinct. Dioscorea, āā 3ss; Compound Syrup of Rhubarb and Potassa, 3ij; in doses of a teaspoonful every two hours, until the discharges are changed, when we may substitute an astringent if necessary. If there is much febrile action, or, the skin is dry and harsh, the hot-Mustard foot bath, with a bowl of hot Pennyroyal, or Sage tea will be beneficial, and if considerable pain or griping, a Mustard plaster to the bowels.

Diarrhœa from atony should be treated with stimulants and astringents. I have used the Aromatic Tincture of Guaiacum with and without Tannic Acid, in doses of a teaspoonful every hour with most marked success. Or, ℞, Oil of Cajeput, Oil of Anise, āā, 3j; Alcohol, 3j; Syrup of Rhubarb and Potassa, f3ij; M., and give in the same doses. Or, Leptandrin, grs. x; Capsicum, Opium, āā, grs. v; M., and make ten powders, of which, one may be given every two hours; in mild cases the common astringents will prove sufficient.

In diarrhœa, the result of determination and congestion, if severe, I order cups to the abdomen, followed by warm fomentations, the hot Mustard foot bath, and in some cases the spirit vapor bath, with the internal administration of Leptandrin, and a demulcent. Or, we may use the White Liquid Physic in this case with advantage; following it with the Syrup of Rhubarb and Potassa. In some of these cases, I alternate the Leptandrin with the Sub-nitrate of Bismuth, in doses of five grains; if symptoms of atony result, with loss of strength, the stimulants first mentioned should be employed.

In mucous diarrhœa, we frequently find it advantageous to clear the bowels by a mild purgative; for this purpose, Castor Oil and Turpentine, or, the White Liquid Physic, or, the Compound Powder of Rhubarb, or Leptandrin and Jalap, with small doses of Podophyllin thoroughly triturated with Loaf Sugar may be used. This should be accompanied by the hot foot bath, and Compound Powder of Ipecac and Opium, and if there is any tenderness of the bowels, a sinapism, with hot fomentation, the hot sitz-bath, or the wet bandage; after the bowels are evacuated, the Syrup of Rhubarb and Potassa, with Essl. Tincture of Leptandrin will usually be sufficient, if not, it may be alternated with one of the vegetable astringents. In some

cases, the stomach being much deranged, it is advisable to commence the treatment with an emetic of Ipecacuanha.

Lienteric diarrhœa should be treated by the use of the bath with brisk friction, the Vinegar bandage to the lower part of the trunk, or some stimulant embrocation; bland and easily digested food, and exercise in the open air. Internally I use the Hydrastin and Leptandrin, with a solution of Chlorate of Potassa and Carbonate of Ammonia. The White Liquid Physic will be found a good remedy, as will also the dilute Nitric Acid, with Simple Syrup. Quinia with Hydrastin seems sometimes to answer an admirable purpose, and with the mineral acids is sufficient for the relief of the disease.

CHOLERA MORBUS.

Cholera morbus is usually caused by acrid or irritating ingesta, or from long-continued torpor of the intestinal canal, the secretions being thereby retained, or from sudden changes of temperature, or arrest of secretion in the warm months of the year. It usually comes on in the summer and autumn and in some years more than in others.

SYMPTOMS.—It usually makes its appearance with pain about the umbilicus, and a feeling of nausea and prostration, and desire to evacuate the bowels. In a short time a diarrhœa sets in, the discharges being large, fluid, and to some extent feculent; usually, the nausea soon passes to vomiting, the attack coming on with the disposition to go to stool, and being long continued and attended with much straining. The pain in the bowels varies greatly, in some cases being extremely intense, at others but slight; the stools vary in character, in some cases yellow, or yellowish brown, and accompanied by vomiting of bile, at others becoming lighter and lighter in color, until they seem nothing but water with whitish flocculi in it, like the rice-water discharges of Asiatic cholera. The first variety has taken the name of *bilious cholera*; in other cases, the bowels seem to be distended with gas, the patient passing considerable flatus at stool; this is termed flatulent cholera.

As the disease progresses, the patient's strength becomes exhausted, the vomiting or retching is more severe, the discharges from the bowels more frequent, and the pain severe and less easily borne. Now, the spasmodic action of the mus-

cles of the lower extremities frequently ensue, and sometimes of the abdominal muscles; the cramps are exceedingly painful, and cause the patient to cry out with pain when they come on. The pulse is now small and fluent, the extremities cold, and the surface bathed in a cold clammy perspiration. If not arrested, we find that the sufferer's strength is gradually exhausted, the mind wanders, and the patient dies.

DIAGNOSIS.—We recognize an attack of cholera morbus from the large fluid evacuations, pain in the bowels, great prostration at the commencement, nausea and vomiting, and cramps of the extremities, and of the abdominal walls.

PROGNOSIS.—The prognosis is favorable if taken in time, and properly treated; but if allowed to run until the system is much exhausted, it may prove fatal.

POST-MORTEM EXAMINATION.—No lesion accounting for death is found; the mucous membrane of the intestines seems blanched, excepting in cases of bilious cholera, when they are colored by bile; all the parts of the body shrunken, and the blood thick and grumous.

TREATMENT.—Though a severe disease, the treatment is the simplest possible. We administer at first the Compound Tincture of Cajepu, in doses of a teaspoonful every fifteen minutes, until the patient feels a sensation of agreeable warmth in the stomach, and then at less frequent intervals. This almost invariably checks the vomiting, and in a large majority of cases, the diarrhœa. Another very efficient remedy is the Aromatic Tincture of Guaiacum, given in the same doses. If the nausea is not controlled by these means, we may give an infusion of Peach-tree bark, or of the Compound Powder of Rhubarb in small doses, or of Sub-nitrate of Bismuth, or Morphia: usually these means are not required.

A sinapism to the epigastrium, and extended over the entire surface of the bowels, and followed by hot fomentations, afford marked relief in some cases. I prefer, however, the application of a towel wrung out of cold water. The hot Mustard foot bath may be used with advantage, and in some cases the vapor bath. If the cramps are severe, friction with Mustard will give relief; or in worse cases, we use the Compound Tincture of Cajepu. In very severe cases, the surface being cold, and the pulse hardly perceptible at the wrist, the patient may be wrapped in a blanket wrung out of hot Mustard and water.

ASIATIC CHOLERA.

A disease having some semblance to cholera was partially described by the Greek physicians, which was probably our cholera morbus. Again, in 1689, Dellen described a disease very much like it.

It was not until from 1774 to 1790, that the disease we know as Asiatic cholera made its appearance, and was then confined to India, though committing great ravages in the Bengal army, it is still believed by many that even this was cholera morbus. The descriptions are so imperfect that it is difficult to determine the character of the affection, and as it was so much milder than the cholera of the present century, we may consider it as not being a variety of this disease.

In August, 1817, the terrible disease known as Asiatic or spasmodic cholera made its appearance at Jessore, about a hundred miles north-east of Calcutta; it reached the latter place early in September, having destroyed thousands of the inhabitants in its course. It gradually passed over the Indian Peninsula, and had by 1823 extended itself in one direction, to the shores of the Caspian Sea, and in another as far as the Mediterranean and the borders of Russia; during this time it counted its victims by millions, nearly depopulating certain sections of country. In 1831, it again made its appearance in Russia, and extended over Europe, reaching England in October of this year. It appeared on this continent at Quebec, on the 10th of June, 1832, and at New York on the 24th of the same month. Its spread in the United States was rapid, and its mortality fearful, and it did not entirely cease until 1834.

Its second appearance in this country, and the third choleraic pestilence that we have accounts of, occurred in 1849. As before, it spread rapidly, and the mortality was very great. It seemed to be confined to no age or condition, but attacked the population indiscriminately. It recurred in 1850, 1851, and in a sporadic form in 1852, having thus lasted four years. The causes of cholera are not known; many ingenious speculations have been made, but we are no nearer the truth than we were at the commencement of the first epidemic. It undoubtedly depends upon some peculiar constitution of the atmosphere, which once generated in India, was gradually propagated over the entire globe.

Cholera is generally believed to be contagious, and its epidemic progress, and extension along traveled thoroughfares, and its appearance on the sea-board only when a vessel has come from an infected port, is urged as proof. We grant these are facts, and further that many cases are known, in which the commencement of the disease in a place immediately succeeded the introduction of a person laboring under cholera from a place where it prevailed. Or, that it appeared first in a person coming from an infected district, possibly to escape the malady, and after two, three or more days had elapsed; and that the disease where it once appeared in a house was rarely satisfied with one victim. Admit all this, and yet we see evidence sufficient to disbelieve its contagiousness: those who were most with it, who nursed in it, who took no precaution to avoid it, other than temperate living, rarely had the disease. It was more apt to attack those who secluded themselves from fear of the disease, and who used undue precautions to avoid it. The poison is an atmospheric one, and though the seeds of the disease are propagated along traveled routes, yet where once disseminated in a place, the mere contact with a person having the disease is not likely to increase the danger. We may well compare it to the virus of small pox, the most minute portion being as potent, when introduced into the blood, as the largest quantity.

SYMPTOMS.—In some cases, the attack of cholera was preceded by a serous diarrhœa, for two, three, or four days, but in a majority of cases, there were no premonitory symptoms up to the day of attack. Usually the first evidence of the disease, was a feeling of great prostration, and a copious evacuation from the bowels. With the first diarrhœal discharge, in many cases, the patient was completely prostrate, and would sometimes pass into the collapsed stage with but two or three. At other times the discharges from the bowels were very frequent and large, and from their peculiar appearance, looking like the water in which rice had been boiled, denominated rice-water discharges. Nausea with prolonged retching and vomiting frequently came on with the first discharges from the bowels, or during the progress of the disease. With the full establishment of the affection, the extremities were cold, and cold clammy perspiration made its appearance on every part of the body, sometimes it was so great as to stand in drops, seeming to be glutinous and sticking

to the hand. The pulse was slow and feeble, the artery easily compressed, and the circulation arrested; gradually as the disease progressed, it failed more and more, until in the stage of collapse it could not be felt in the extremities. With the full development of the disease, spasmodic action of the muscles, or cramps, would come on, usually at first in the lower extremities, but at last affecting all parts.

The muscles would contract into hard rigid knots, the patient suffering excruciating pain, which was best relieved by compression and brisk friction. A marked change was now noticed in the appearance of the patient, he seemed to have lost flesh as much as he would in two or three weeks' sickness; the eyes were sunk in the head, the countenance pinched and contracted and of a ghastly white color, the lips and mouth of a leaden purplish hue. The disease continuing, it soon passes into the stage of collapse, the entire surface being cold and covered with a clammy perspiration, a remarkably cadaverous appearance of the countenance, and a shrunk and shriveled skin. The pulse at the wrist is very feeble, and seems very much like drops of water trickling under the finger, and at last it is not perceptible. The discharges from the bowels are now involuntary, consisting of simple water, with the whitish flocculi heretofore named. The cramps still continue, frequently with increased severity. Sometimes the patient's mind wavers, but at others it is clear and composed to the last.

The disease is of variable duration, sometimes terminating fatally in an hour or two, most generally within twenty-four hours, though in some rare cases it lasts two or three days. If it terminates favorably, we find that much care is necessary during convalescence, as the bowels are so feeble, and there has been such a severe shock to the system. A low grade of fever not unfrequently sets in after it, continuing for several days, and requiring careful management.

DIAGNOSIS.—Cholera is diagnosed from all other affections but cholera morbus with great ease, but from this, with the greatest difficulty; as the symptoms are very nearly the same, differing but in severity. During the prevalence of an epidemic of cholera, we are justified in considering all cases such, that are attended by rice-water discharges from the bowels, spasmodic action of the muscles, and prostration.

PROGNOSIS.—Though a disease usually attended with a fear-

ful mortality, it is yet amenable to prompt and appropriate treatment. It was observed by our physicians in this city, that the mortality in their practice would not exceed five per cent. For my part, I think they claimed too much, and that many cases of common diarrhœa, which was prevalent at the time, were included in their enumeration. Still it is very evident from the reports, that their success was very great. From what I know of the disease, I should consider a mortality of not over ten per cent. good practice.

POST-MORTEM EXAMINATION.—The lesions of structure in cholera are not very marked. The intestinal mucous membrane, where we should expect to find evidences of the disease, is but little changed, or presents evidences of congestion, it is usually covered with a whitish muco-albuminous matter, and the follicles are enlarged and tumified. The intestine is sometimes much contracted, at others it is distended in certain portions with flatus. The surface of the body presents the peculiar contracted appearance, noticed during the latter stage of the disease, and the surface is covered by the sticky perspiration. Usually there is a peculiar cadaverous odor, which is frequently noticed during the latter part of the disease. The blood in the heart and large vessels is black and grumous, and the coats of the vessels frequently discolored from it. Dr. Cowan noticed a remarkable alteration in the blood of a cholera patient on microscopic examination. "It consisted in the colored corpuseles being paler than usual, and the colorless normal, but mingled with those were others varying in shape and size. They were generally circular, but some were oval, and a few caudate. They had a well defined external smooth border, having one or two bright refracting granules, generally situate in the external membrane, and occasionally projecting from it. When seen edgeways, they were flattened and existed in the proportion of one to seven of the colored corpuseles."

It is deemed by some authorities that there is deficiency of the saline matter of the blood, and they attempt to account for the symptoms on this hypothesis, and base a treatment upon it. That there is deficiency of water after the evacuations become profuse, and that some of the symptoms are dependent upon the thickness of the blood there can be no doubt, but this is but the result and not the cause of the affection. Like other of the more malignant affections the lesions

are doubtless in the blood and nervous system, but we have yet to learn the means of analyzing them.

TREATMENT.—The treatment I adopt in a case of cholera is such as will support the flagging powers of life, by strong stimulation. It may not be successful in all cases, but I feel satisfied that it will be attended by as good results as any others. If there is irritability of the stomach with continued vomiting, so that remedies will not remain upon the stomach, I administer an emetic of the Compound Powder of Lobelia, or, of Salt and Mustard. In a majority of cases, however, we have nothing better to settle the stomach than the Compound Tincture of Cajeput, or Hunn's Life Drops. It should be administered in doses of a teaspoonful every five or ten minutes, until the vomiting ceases, and there is returning warmth to the extremities, and feeling of heat when the medicine is taken, when it may be given less frequently. To aid its action, I direct flannel cloths wrung out of hot Mustard and water to be applied over the entire abdomen, or, if this seems impossible, we may use strong Salt water cold, or equal parts of Turpentine and Tincture of Camphor. If the case was approaching collapse, I should wrap the patient in a blanket, wrung out of Mustard and water, as hot as could be borne, or, if there were no facilities for getting this, I would use the cold wet sheet pack, the water being pretty strongly impregnated with Salt. One application I am satisfied is as serviceable as the other, in fact I should prefer the last, if it were not so unpleasant, and objected to by the friends.

The cramps are an exceedingly troublesome feature of the disease, and are best removed by friction with dry Mustard. This is also recommended to bring the circulation back to the surface, but without the slightest effect, until the internal remedies commence to affect the system. The Compound Tincture of Cajeput is much the best local application, if it were not so costly.

The treatment named above seems very meager, and yet it is the best that I have tried myself, or witnessed with others. Other remedies possessing similar properties might be substituted for the Compound Tincture of Cajeput, but I doubt their being equal, if as good. Those that seemed to exert the best influence, were the Tincture of Xanthoxylum, Aromatic Tincture of Guaiacum, and Camphor. Other treatment pursued

during the last epidemic and recommended as successful, I will now proceed to name, quoting from the proceedings of the Eclectic Medical Society of Cincinnati.

Dr. Morrow stated that he had found no remedy better than the Aromatic Tincture of Guaiacum (Guaiacum, Cinnamon, Cloves, each, 3j; best Brandy, Oj;) in doses of a teaspoonful every fifteen or twenty minutes. In some cases where there was excessive nausea, he had found it best to give an emetic, preferring the Acetous Tincture of Lobelia and Sanguinaria, with one-third of the Tincture of Aralia Spinosa. The external application of heat, and in some cases the hot blanket, he considered important. He had also used Hunn's Life Drops and Camphor with success.

Dr. King recommended R, Ox Gall, 3j; Capsicum, Gum Guaiac, āā, 6iv; Leptandrin, 3iv; M., this was given in doses of a grain, and repeated two or three times a day. He had also succeeded in many cases with a mixture of R, Sulphur Subl., grs. iv; Gum Guaiac, Charcoal, āā, grs. ij; Camphor, gr. j; Opium, gr. ss; M., in doses of from one to two grains every ten minutes, until relief is experienced. He had also employed the spirit vapor bath, with brandy and aromatics, the patients recovering. He had also used the Tincture of Xanthoxylum and Hunn's Life Drops, with advantage; and in one case a teaspoonful of Black Pepper, one of table Salt and five of Vinegar to half a tumbler of hot water.

Dr. Newton employed the Tincture of Xanthoxylum, and equal parts of Tannin, Capsicum, Camphor and Kino, in doses of one grain of each repeated at short intervals, until the discharges were checked. The Xanthoxylum he considered the most powerful remedy to equalize the circulation with which he was acquainted; he employed it, both by mouth and enema.

Dr. Wright used Neutralizing Extract, Tincture of Xanthoxylum and Compound Tincture of Guaiacum; the best external application he had found, was equal parts of Salt, Capsicum and Mustard; in the spasmodic stage he used Thompson's third preparation of Lobelia.

Convalescence should be managed with care, the patient should be kept calm, avoiding all causes of irritation; the food should be bland, and taken in small quantities; exercise in the sun should be avoided; and the bitter tonics with a small amount of stimulants employed. If fever should arise, it will be dependent in part upon gastro-intestinal irritation,

which should be closely watched, and the fever treated as heretofore recommended.

CHOLERA INFANTUM.

Cholera infantum, or *summer complaint*, is a disease of very frequent occurrence, and one of the most difficult that we are called to treat. It occurs usually, during the second summer, or the period of first dentition, but may come on as early as the age of six or eight months, or as late as the third or fourth year. It is difficult to determine why at this time the child should be so susceptible to gastro-intestinal irritation.

Many have urged dentition as the cause, but as that is a physiological process, except when disturbed, we would expect to find the disease only in cases of dental irritation, whereas we find it in children who have no teeth, who are not cutting teeth at the time the disease commences, who have all their deciduous teeth, except the four last molars, or who show no swelling, tenderness or irritation of the gums. We would rather conclude, that at this period there is a change in the system, consequent upon the change in the food of the child, and its being no longer dependent upon its mother for sustenance. If the child is of vigorous parents, robust and healthy, this change is effected without disease, but if of feeble vitality, cholera infantum is almost sure to result.

It occurs during the summer, usually making its appearance in June and July, and in the severer cases, lasting until frost and cool nights in the fall. A continuous high temperature has much to do in bringing it on, and it is more frequent in seasons in which this is the case. As the weather becomes cool in the fall it is mitigated, and with the appearance of frost it ceases, though we find that the sudden changes to cold during the summer are rather injurious, than otherwise.

SYMPTOMS.—We may divide cholera infantum, first, into the *acute and chronic*; and second, into *febrile* and *non-febrile*; the distinction in many cases being marked and the treatment different.

Acute cholera infantum is frequently preceded for some days, or sometimes for a week or two, by a common feculent diarrhœa. It gives rise to but little uneasiness, as the child's appetite is not impaired, it sleeps well at night, plays as

usual, though there is some loss of flesh. All at once it seems to be very much prostrated, the discharges from the bowels are frequent, and there is continuous nausea, with inability to retain either fluids or solids upon the stomach. The thirst is extreme, the child constantly desiring water, but when given it is immediately rejected from the stomach. In some cases, the skin is harsh and dry, and the pulse hard and increased in frequency; in others the skin is soft and doughy, the extremities cold, and the pulse feeble and frequent.

Occasionally the brain is affected, there being congestion, or a low form of determination, or effusion; I recognize these cases by the extreme restlessness when there is determination, and a continued rolling of the head from side to side, and stupor, in the other cases.

The disease may terminate fatally during the first twenty-four hours, or may continue for three or four days, or gradually pass into the chronic form.

Chronic cholera infantum usually makes its appearance at first as a simple diarrhœa, which gives little uneasiness and seems not to affect the health of the little patient. After continuing thus for a week or two it is noticed that the child is becoming very thin in flesh, its appetite is impaired, it is very thirsty, and when the stomach is overloaded there is nausea and vomiting. As the disease progresses, the desire for drink becomes more craving, the evacuations from the bowels more frequent, and the little patient wasted to a mere skeleton of its former self. The discharges from the bowels vary much in character in different cases, and even in the same case at different times. Sometimes they are yellowish, with more or less stringy mucus mixed with them, showing disease of the mucous follicles; at others they are greenish, and have a sour smell; at others, clayey; again, almost white, and rarely a dark-brown or black.

In febrile cholera infantum, the skin is harsh, dry and constricted, in some cases seeming to be drawn upon the patient like parchment. There is great irritability of the nervous system, the patient being restless and uneasy, never satisfied, always changing its position, wanting everything, satisfied with nothing, and especially restless and wakeful at night. The child seems to be worse in the after part of the day and evening, and frequently every other day. When the disease becomes very severe, it is almost impossible to keep

the child in bed at night, the heat seems to torture it, and it is only satisfied when laid where it can turn freely about, or when carried from place to place.

In the non-febrile form, the skin is soft, relaxed and flabby, the extremities cool, the bowels distended or pendulous, the tongue broad, flabby and coated, and the pulse small, soft and fluent. The child is not so restless as in the preceding case, seems stupid and dull when nursed or in a comfortable position, but wants its own way. In both cases the appetite is alike impaired, there is the same nausea, the same desire for drink, and the same prostration of strength.

We sometimes find the brain seemingly affected in these cases, when there is a continued moving of the head from side to side, the child sleeping with its eyes partly open, and rolling the eyeballs upward. If the pupils are somewhat dilated and do not contract freely upon exposure to light, I am satisfied there is congestion with effusion, and consider the patient's prospects very poor. Occasionally determination to the brain sets in, the head is hot, there is throbbing of the carotid arteries, contraction of the pupil, and intense restlessness and uneasiness.

DIAGNOSIS.—The diagnosis of cholera infantum is very easy; the frequent discharges from the bowels, the intense desire for drink, nausea and vomiting, loss of flesh, and great prostration, can not be mistaken.

PROGNOSIS.—The prognosis is favorable except in those cases in which there is disease of the brain, generally acute hydrocephalus, or as described by Marshall Hall, *hydrocephaloid disease*, in which the mortality will be very great. These are most frequently cases which have been neglected in the commencement, but sometimes the brain disease precedes the diarrhœa.

TREATMENT.—In acute cholera infantum, as well as in chronic, the first object is to arrest the nausea and vomiting. For this purpose we may use an infusion of the Compound Powder of Rhubarb in small doses, repeated every ten or fifteen minutes; or an infusion of Mentha Piperita or Viridis, or of Peach-tree bark, or Sub-nitrate of Bismuth, or minute doses of Morphia or of Aconite; or a strong stimulant, as Compound Tincture of Cajepu, or Chloroform, or Sulphuric Ether, taken by mouth. This is rather an extensive catalogue of means, but it would seem desirable in some cases if

it could be increased. The infusion of Peach-tree bark I value very highly; I direct the bark of the young limbs to be seraped off, put in a vessel and covered with boiling water; when cold it is ready for use. The vessel containing it may be set on ice to render it cold, and it may be administered in doses of half a teaspoonful every fifteen or thirty minutes. When prescribing the Bismuth it is usually in the following form: *R*, Sub-nitrate of Bismuth, 3j; Aqua Menthæ Viridis, ʒii; shake thoroughly, and give in teaspoonful doses every hour. Morphia should never be administered for this purpose when there is the least evidence of nervous prostration; and when given it should be in doses not larger than the one-twentieth of a grain. Aconite may be used in cases where there is irritation of the nervous system, with dry skin and hard pulse. The stimulants are used with greatest advantage in those cases attended by marked prostration, with coldness of the extremities. In some cases, we may use an emetic.

External applications are sometimes of great advantage; to the epigastrium we may apply a sinapism, or in very acute cases a fly-blister, or an aromatic poultice, composed of equal parts of ground Cinnamon, Allspice, Cloves and Mustard, or the Tinctures of the Oil of Cinnamon, Cloves and Anise. Sometimes hot fomentations seem to give great relief, and are indicated in those cases attended with coldness of the surface. When the skin is hot and dry, I prefer a towel wrung out of cold water to the abdomen, or in some cases, the wet sheet pack.

With the arrest of the sickness of the stomach the worst difficulty is over, for though we may not control the diarrhœa at once, we will have placed our patient in such a condition as to give us time. In many cases the administration of an infusion of the Compound Powder of Rhubarb in teaspoonful doses every hour, until it changes the character of the evacuations, rendering them dark like the medicine, and then in less frequent doses answers a good purpose. If the stools are light or clay-colored, Leptandrin and Geraniin are the appropriate remedies, or small doses of the White Liquid Physic may be given. In other cases the Sub-nitrate of Bismuth may be administered with the most marked advantage, especially if there is a tendency to dysentery, or tenesmus attending the discharges. At other times the common vegetable astringents may be used as in cases of common

diarrhœa. If the skin is harsh and dry, I administer Tincture of Aconite, gtt. xx, to Water, ʒiv; in doses of a teaspoonful every hour, until the surface becomes moist and natural; and then follow with Quinia in doses of one grain every two hours, until two or three doses are taken.

In chronic cholera infantum the same means are resorted to to check the vomiting. I give preference to the infusion of Compound Powder of Rhubarb, or of Peach-tree bark. We do not expect to arrest it at once; sometimes two or three days, or a week, are required for that purpose. The first named agent, or the Syrup of Rhubarb and Potassa, given in teaspoonful doses every hour until the operations resemble the medicine in color, frequently answers an admirable purpose. The *Epilobium* is an agent I value highly in this disease, though not speedy in its action. I direct two drachms to one-third of a teacupful of boiling water, when cold strained, two teaspoonfuls of Brandy added, sweetened, and given in doses of a teaspoonful an hour. The Bismuth is excellent in some cases, as before named, and when there is torpor of the liver, as manifested by the light-colored discharges, the *Lep-tandrin* should be associated with all other treatment.

In cases where there is any evidence of periodicity, or where there is a hard pulse or dry skin, Quinia is one of the most efficient remedies. It may be given in doses of one grain every two or three hours, until two or three doses are taken daily. In some cases it has arrested the nausea and diarrhœa when all other means had failed. It may be associated with the *Hydrastin*, in some cases, with advantage. If there is tendency to disease of the liver, I prefer small doses of *Belladonna* and Aconite, alternated, or minute doses of *Nux Vomica*, ten drops to five ounces of water; and a teaspoonful every two or three hours would be as large as would be useful.

The bath is an important agency in the treatment; it may be used cold, tepid or warm, according to the indications, and may be medicated by the addition of Salt, Bi-carbonate of Potassa, Capsicum or a decoction of bitter agents. The food will vary in different cases. If the child nurses, it may be restricted to the mother's milk, or if this disagrees, cow's milk will sometimes be appropriate; in other cases, farina, sago, etc., seems to answer best; but frequently I have seen the best results from gratifying the child's appetite for meat, especially fat bacon, ham, dried beef, beef suet, etc.; fatty matters, when

they agree with the stomach, answer an admirable purpose. Stimulants may be employed, as the Brandy with *Epilobium*, already referred to, but the best is undoubtedly Catawba Wine, which sometimes seems to act as both food and medicine.

TABES MESENTERICA.

Tuberculous disease of the intestinal canal is most usually met with in childhood, though occasional cases will be seen even up to the age of twenty-five. It occurs only in those constitutions which we have before referred to as being tuberculous, and where, if the irritation had been of the lungs instead of the bowels, it would have been phthisis.

The pathology of the disease is well described by Habershon: "In disease of the mesenteric glands, a low organized product is effused into the glands themselves, probably because the chyliferous duets become entirely obliterated, and the structure of the gland destroyed. Their extensive disease prevents the absorption of chyle into the system. The glands share the disease in various stages and gradations; in some, but scanty abnormal product is found, in others the whole gland is destroyed and very much enlarged, constituting a whitish mass, the size of a pigeon's or hen's egg. The effused product consists of granular blastema, and imperfectly developed cells. The swollen and injected state of the glands less affected, appears to indicate that inflammation or hyperæmia is associated with the disease. The increase takes place by additions at the periphery of that already deposited, and degeneration occurs in the center from the scanty supply of nourishment afforded to the central part. The gland sometimes appears to be enveloped by a firm, fibrinous cyst, which consists of inflammatory product better organized, having assumed the character of fibrous tissue, while the center consists of calcareous deposit, the albuminous portion having been absorbed, and the organic only left. Degeneration of another character, however, takes place in the effused product, it is converted into a mass of granular molecules and highly refracting particles, constituting small, cheesy tubercles of a yellow color, or a softened and semi-diffuent mass. The lacteals between the glands become enlarged and distended with similar strumous product, or we can trace the distended ducts to

the intestine, where they ramify on its surface, and at this part we generally find a cluster of tubercles and ulceration of the mucous membrane."

SYMPTOMS.—In children it is usually preceded by diarrhœa and gradually increasing prostration. The appetite is usually good, sometimes ravenous, but patient receives no apparent benefit. The bowels are sometimes tumid, hot and tender, at others, very much shrunk; the evacuations consisting of a thin mucus, greenish, and frequently resembling the washings of meat. The countenance is contracted and pinched, the eyes set far back in the head, and the skin peculiarly dry, wrinkled and sallow, giving the child a prematurely aged appearance. It is restless, irritable and fretful, and presents many of the symptoms of cholera infantum.

In the adult there may or may not be diarrhœa, frequently an alternation of diarrhœa and constipation, and sometimes severe pain. There is a marked marasmus, increasing day by day, though the appetite may be good, and the digestion seemingly well performed. The patient has an anxious expression of countenance, a sallow, wrinkled skin, contracted abdomen, and is uneasy, restless and irritable. In the latter stage diarrhœa sometimes sets in, and carries the patient off quickly, or disease of the brain or lungs, comes on to assist the tabes. In both cases the enlarged mesenteric glands can frequently be felt through the abdominal wall.

DIAGNOSIS.—Tabes mesenterica is diagnosed with difficulty. The principal symptoms leading us to believe in strumous disease of the mesentery are: the continuance of a good appetite, and seemingly good digestion, with continually increasing loss of strength, and flesh, and the evidence of disordered bowels, and in the latter stages feeling the enlarged mesenteric glands through the abdominal walls. It will be seen that our diagnosis will have to be made principally by exclusion, a very common method, and possibly more correct than by direct symptoms.

PROGNOSIS.—The prognosis in well-marked cases of this disease is exceedingly unfavorable, as much so as any disease we are called to treat. In the earlier stages its progress may be arrested as it may also occasionally in the latter.

TREATMENT.—In the case of children but little additional can be named to the treatment of cholera infantum, which is adapted to this disease. The use of Cod-liver Oil, when it

can be taken without nausea or deranging the bowels, sometimes proves beneficial, as does also the bath of the same, or free innervation with almost any fatty matter. Opium, in the form of the Diaphoretic Powder, may be used to quiet restlessness, and Iodide of Potassium and Quinia given to promote absorption and keep up the strength. As an external application, nothing is better than one part of Turpentine to four of Sweet Oil applied to the entire surface of the abdomen.

The treatment of the adult will not vary much from this, the continuous use of the Salts of Potassa in minute doses, with very small doses of Leptandrin, Podophyllin, and Macrotin, triturated with white Sugar, and not in sufficient doses to affect the bowels, is the most serviceable treatment. The employment of the alkaline sponge bath with friction, moderate exercise in the open air, and all measures that will improve the general health of the patient increase his chances.

ILEUS.

Obstruction of the bowels is not of very frequent occurrence. It may arise from various causes, among which may be enumerated: "1, From bands of adhesion, the results of inflammatory action; 2, From congenital intestinal pouch becoming adherent; 3, From the appendix cæci assuming a fixed and adherent position; 4, From the twisting of the intestine upon its own axis, upon the mesentery, or upon other coils of intestine; 5, From tumors developed in the mesentery leading to constriction; 6, From intussuseption; 7, From cancerous disease of the intestine, 8, From contraction of cicatrices, as after dysentery or fever; 9, From enteritis or peritonitis; 10, From impaction of fæces, or of foreign bodies, as gall-stones, etc.; 11, Obscure forms of hernia, as into the obturator foramen, etc.; 12, Prolapsus-ani and inflamed hemorrhoids; 13, Abdominal or pelvic tumors."—(Habershon). Some of these causes are readily determined, and may be excluded from the subject, as enteritis, peritonitis, prolapsus-ani, inflamed hemorrhoids and abdominal or pelvic tumors. Again, it has been contended by some authors that all the symptoms found in these cases may be produced by a spasmodic state of the intestine, no strangulation or cause of obstruction being detected after death.

SYMPTOMS.—In the early stage of the affection, the patient is obstinately constipated, and complains of an uneasy sensation at the part where the obstruction exists, being sometimes able to place the hand directly on the part. In a longer or shorter time he complains of a twisting or violent pain about the umbilicus, without tenderness on pressure, in fact, frequently relieved by it. Nausea comes on, with frequent retchings, vomiting of the contents of the stomach, then of bile, of and finally feculent matters. The abdomen becomes very much distended with gas, is tense and tender, the countenance shrunk and anxious, the extremities cold, with frequently cold, clammy perspiration, hiccough, and gradual failure of vital power.

The disease pursues a variable course, sometimes the suffering is extreme at the commencement, and all the worst symptoms above named appear in twenty-four or forty-eight hours; in others, the disease will not terminate fatally under six or seven days; and in some cases, the large intestine being the seat of the obstruction, it may last for three or four weeks.

DIAGNOSIS.—Much difficulty is experienced in detecting the character of these cases, as the symptoms at first are none of them distinctive. If of sudden occurrence, as when the patient feels a sudden, severe colicky pain when straining at stool, becoming more and more severe, and attended with tenesmus and constant desire to go to stool, but unable to pass anything from the bowels, we have a tolerably plain case. In other cases, we are led to believe that there is intestinal obstruction by the continuance of the constipation, sufficient means having been used for its removal, by the fixed location of the severe pain, and the constant nausea and marked prostration. At a later stage, the continuance of all the above symptoms, and the appearance of stercoraceous vomiting is positive evidence. If the patient has had peritonitis, we have reasonable ground to conclude that it results from adhesions. Tumors are likely to have given rise to previous uneasiness, and to be so developed as to be diagnosed on examination. Cancer will have been of long duration, and given rise to disturbance of the bowels, and the ileus of slow formation. Impaction of feces may sometimes be determined by the hard, irregular tumor that presents, and its sudden appearance. Obscure hernia by its location and the circumscribed character of the pain.

PROGNOSIS.—The prognosis in these affections is unfavorable, though many recover. If there is continued increase in the severity of the symptoms, the nausea and vomiting being intense and persistent, and especially of stercoraceous material, with great prostration and anxiety, the prospect is very poor. If, however, the bowels are moved, the pain being mitigated, the patient will recover. In some cases of intussusception, when the symptoms are very severe, the patient still retains his strength, the nausea abates somewhat, and after two, three or four weeks of suffering, a portion of the intussuscepted bowel is discharged, and the patient recovers. So many of these cases have occurred, that we would not despair, even after having employed all the means recommended without success, for nature will sometimes step in, and thus save the life of the person.

TREATMENT.—In almost all cases purgatives will have been thoroughly tried, before we are called, so that we will not have to regret the giving them as one of ours; still, cases will undoubtedly occur, in which the symptoms will be so obscure that we will administer them ourselves, to the great detriment of the patient. In all cases, the administration of Opium and an infusion of Dioscorea, or Dioscorin in sufficient quantity to relieve the pain, will be all the internal medicine usually of use. The nausea must be quieted as much as possible, by the use of the means heretofore named: an infusion of Compound Powder of Rhubarb, Peach-tree bark, Sub-nitrate of Bismuth, Ipec, Morphia, etc., and the employment of counter-irritation to the epigastrium. The association of Chloroform, Sulphuric Ether, or Tincture of Gelsemium will be advantageous in some cases, the two first especially in case of tympanitis.

To relieve the obstruction, large quantities of fluid, thin gruel is as good as anything, should be thrown up the bowel with a pump syringe. As much as from half to one gallon may be thus used, completely distending the large intestine. This may be repeated several times per day; or, what is deemed even better than this, the introduction of air by means of an air-pump, until the larger intestine was distended to its full extent. Change of position is sometimes advantageous, at others hurtful, and the same be said of the sudden application of cold water. Great relief may sometimes be

given by the use of the hot sitz bath, and occasionally by the use of hot fomentations to the abdomen.

The question of surgical interference in bad cases, becomes one of anxious consideration, as in some cases the obstruction is of such character as that it might thus be relieved with the greatest facility. Mr. Hilton has resorted to this mode of relief with success, but others have signally failed. When it can be determined that the obstruction is of the large intestine, the operation for *artificial anus*, offers the best chance for success. If the means first named does not prove successful, we endeavor to prolong the patient's life, hoping that nature will step in and remove the obstruction. We thus use stimulants in small quantities, and nutritious enemata, and such means as will relieve the sufferings of the patient as much as possible.

COLIC.

The general features of colic are griping pains in the bowels of a more or less constant character, constipation, and absence of inflammatory or febrile symptoms. It may be dependent upon various causes, as acrid ingesta, irritating secretions, gaseous accumulations, spasmodic contraction of the muscular coat from irritation of the sympathetic and spinal nervous systems, structural disease of the intestinal canal, and disease of the blood. We may describe the disease as consisting of three forms—common or wind colic—bilious colic and colica pictonum or lead colic.

SYMPTOMS.—The *common* form of colic is produced most frequently from irritating ingesta, or acrid secretions. It commences with a severe griping pain in the region of the umbilicus, though somewhat wandering in its character, changing its position from one side to the other, and from above to the lower portions of the abdomen. It is not constant, but remittent, giving the patient a moment's ease, then recurring with increased severity. In some cases it seems to be confined to the stomach, as if it was contracted upon itself (cramps of the stomach), but more frequently involving the entire intestinal canal.

There is no tenderness on pressure, but frequently relief is afforded by it; the skin is cool, the pulse regular and not increased in frequency, and there are no symptoms of febrile

action. The bowels are usually constipated, though if produced by irritant ingesta, there may be watery evacuations from the bowels.

It generally lasts but a few hours, though if not properly treated, it sometimes becomes very severe.

TREATMENT.—The treatment is simple: if the pain is confined principally to the stomach, or upper portion of the abdomen, and we have the evidence that the patient has been lately eating unripe fruit or other articles difficult of digestion, we would immediately give an emetic. Thirty grains of Ipecacuanha in warm water, will answer the purpose admirably, or we may use a teaspoonful of Mustard in half a tumblerful of warm water, or give an infusion of Compound Powder of Lobelia. In other cases, the most effectual and quickest remedy, is, the Compound Powder of Jalap and Senna in doses of twenty grains every hour, until the pain is relieved; or, if the patient objects to taking it by the mouth, two drachms mixed with warm water, and used as an enema, will answer the purpose admirably. In lieu of this, almost any of the Aromatics may be employed, or equal parts of Compound Tincture of Lavender, and Syrup of Rhubarb and Potassa; or, a Tincture of the Oil of Anise, of Peppermint, or of Cajeput; or, a teaspoonful of ground Pepper, Tincture of Camphor, etc. A sinapism applied to the abdomen frequently gives relief, though I prefer a towel wrung out of cold water.

BILIOUS COLIC.

Bilious colic is doubtless dependent upon an irritation of the mucous membrane of the intestinal canal, with vitiated secretions, which irritation induces spasmodic contraction of the muscular coat. We have to determine whether the irritation is dependent upon the acrid character of the secretions, or, whether the change in the secretions is not owing to the irritation of the mucous membrane. The name *bilious* is derived from the fact that the vomiting that so generally attends the disease, is to some considerable extent mixed with bile.

SYMPTOMS.—Very frequently the attack of colic is preceded by symptoms of irritation and imperfect digestion. The tongue has been coated at the base, the mouth is clammy

and has a bad taste, the head feels bad, the skin dry; bowels constipated, and more or less languor of the system.

When the disease commences, there are severe griping pains in the bowels, more severe than in the preceding case, and not exhibiting the same remissions. The abdomen is more or less tumid, with marked tension or hardness; pressure elicits some tenderness, but this usually passes off, if it is continued, when it frequently gives relief. Nausea or vomiting frequently make their appearance in the early part of the disease, though sometimes not until the last. The retchings are violent and painful, and often the contents of the stomach are thrown up, consist of a greenish, or yellowish, acrid bilious material. The pulse is slightly accelerated and full from the commencement, and the patient nervous and irritable.

As the disease progresses the pain becomes more severe, and is not unfrequently attended with a desire to evacuate the bowels, which is found to be impossible, or, if anything passes it is small in quantity and scybalous. The abdomen becomes harder and pressure causes pain, the pulse is accelerated, the countenance has an anxious expression, the skin is harsh, the extremities cold, and the patient extremely restless. The strength gradually gives way to the severe suffering, the disease lasting from one to three or four, or in some cases, seven or eight days.

DIAGNOSIS.—Bilious colic is diagnosed by the intensity and continuance of the pain, the hard and tumid abdomen, nausea and vomiting, acceleration of pulse, and harsh, dry skin.

PROGNOSIS.—Though attended with much suffering, yet a favorable result may be looked for in a large majority of cases. A subsidence of the pain, the bowels being soon moved, are the most favorable indications.

POST MORTEM EXAMINATION.—No lesion has been found to account for the severity of the disease. In some cases there was slight congestion of the intestines, with evidence of spasmodic contraction, absence of any material within this portion, or sometimes masses of scybalous feces, almost or quite blocking up the cavity.

TREATMENT.—We do not employ a great many remedies in this disease, but what we do use, seems to answer the purpose well. If the Dioscorea could be obtained, I should want no other medicine; make a strong infusion, and give it in table-

spoonful doses every ten minutes until the pain ceases; or the Dioscorin or the Tincture may be employed for the same purpose, but are not as efficient. If this could not be obtained, I would strongly recommend the Compound Powder of Jalap and Senna, in doses of ten grains, every fifteen minutes, until the bowels are moved. There is no fear of giving too much, as it will be rejected by the stomach, a considerable portion being thrown up at each time, when the nausea is great. To assist its action in severe cases, I use the same agent as an enema, mixed with warm water.

Other remedies may be used, but without any permanent advantage, so far as I could ever discover; Chloroform with Glycerin will frequently quiet the pain for the time being, and may be used for this purpose, whilst we are waiting for the action of other medicines, as may also some of the aromatic stimulants. The *Epilobium* in infusion has been very highly recommended, but I have not yet had an opportunity to try it.

The warm bath, or the vapor bath, give great relief, and materially assist the action of the other remedies. Or, fomentations of hops or bitter herbs, or, what is very servicable, the *Polygonum* may be employed in place of the bath. Cups either dry or wet are sometimes useful, but I have never seen any good results from other means of counter-irritation, except over the epigastrium, to relieve vomiting.

If the nausea and vomiting are so persistent as to prevent the employment of the remedies first named to advantage, I would advise the use of an emetic of the Comp. Powder of *Lobelia*, with copious draughts of a warm infusion of *Pennyroyal* or *Sage*, and given to produce relaxation and copious emesis. If inflammation of the bowels results, as is sometimes the case, it should be treated by the use of special sedatives, *Belladonna*, alkaline diuretics, cups to the abdomen, and the thorough use of the warm bath.

COLICA PICTONUM.

Lead colic most generally occurs in persons who work in lead, as workmen in paint manufactories, painters, plumbers, type founders, etc., and is the result of a continued absorption of the mineral for a considerable period of time. Some persons are peculiarly susceptible to the poison of lead, and in

such cases we may find it caused by sleeping in a recently painted room, the medicinal administration of lead, and by using water passing through lead pipes.

Cases of chronic lead poisoning are observed in which there is no derangement of the bowels, the patient is very sallow and anæmic, muscular development diminished, the appetite and digestion impaired, and more or less paralysis, the most common form of which is a peculiar form of dropping of the wrists. The most distinctive feature in all cases of lead poisoning is a blue line on the edges of the gums, which may be taken as a guarantee of lead absorption.

SYMPTOMS.—Lead colic commences with an obscure pain in the abdomen, the bowels being costive and hard, and sometimes knotted to the touch. As it continues it becomes so severe that the patient screams with agony; at first confined to the region above the umbilicus, and seeming to shoot from one hypochondria to the other, it gradually extends until it affects the entire abdomen. In the severe cases it extends to the back, the upper extremities, the hips, thighs and legs, until it sometimes seems that no part of the body is free from pain. The abdominal walls are tense and hard, sometimes knotted, and the umbilicus is drawn inwards. The bowels are not tender to pressure, neither does it alleviate the pain, as in some other forms of colic. The patient is frequently troubled with nausea and vomiting, the material thrown off the stomach being a slimy fluid more or less mixed with acrid bile. The tongue is pale, broad and flabby, and its movements controlled with difficulty, the skin soft and moist, the pulse not at first affected, but when the disease is long-continued and severe it becomes soft, feeble and increased in frequency. The bowels are obstinately constipated, if anything passes, it is in hard scybalous masses, with a brownish water; the sphincters seem to be sometimes so contracted that neither urine or fæces can be passed, and it is with the greatest difficulty that we can introduce the clyster pipe. The duration of the disease is variable, terminating in a majority of cases between the second and thirteenth day of the treatment.

DIAGNOSIS.—The diagnosis is in some cases difficult, though in others the symptoms above named are so well defined as not to be mistaken. The fact of the patient's being a worker in lead, or having been exposed to it in an unusual manner, is an aid to diagnosis. If there is the blue and livid line on the

gums, or a dropping of the wrists, we are assured we have a case of lead poisoning.

PROGNOSIS.—The prognosis is favorable in a large majority of cases, though the disease may last for some time.

POST-MORTEM EXAMINATION.—Lead colic generally proves fatal from its complications, the most frequent being of the nervous system. Most authors claim that no lesion of the intestinal canal can be detected on dissection, the bowels being perfectly natural throughout, though the muscular coat is pale and wasted. One, Dr. Hazen, claims that contraction of the colon and cæcum existed in all cases that he examined.

TREATMENT.—The first object of treatment is to mitigate the intense pain, and open the bowels, after which means to remove the lead should be immediately used. Among the most efficient means for the relief of pain, is the administration of Chloroform in doses of from twenty to thirty drops every half hour or hour; it may be administered in mucilage, water, rectified spirits, or what is preferable to all, Glycerin. I usually order it in the following manner: \mathcal{R} , Chloroform, 3ss; Glycerin, 3ij, shake well and give a teaspoonful as often as required. If this can not be obtained, or fails, Opium, Belladonna, or Hyoscyamus may be used in full doses in its stead. With this, Alum in doses of fifteen grains every two hours, or Iodide of Potassium, in doses of two or three grains every hour, as antidotes to the poison.

To open the bowels, I prefer the use of enemata of Compound Powder of Jalap and Senna, or the same may be used internally, or a pill containing from half to one drop of Croton Oil, is recommended in bad cases; if the last were given, I should make the mass of Extract of Hyoscyamus, two to five grains. Sulphate of Magnesia has been used for the same purpose and is highly recommended, as is also the White Liquid Physic, heretofore named.

As a local application, Chloroform applied to the abdomen is one of the most efficient; in using it, drop fifteen or twenty drops on a wet cloth, and apply for a few minutes and repeat. Hot fomentations have been used, but without much benefit, as has also the cold water bandage. A cataplasm of Tobaceo is highly recommended, and I have no doubt will prove useful.

I prefer the warm bath to other means. If there are no facilities for giving an entire bath, a large wash-tub filled with water as hot as can be borne, the patient sitting in it, answers

a good purpose. A bath containing the Sulphide of Potassium, in the proportion of four ounces to thirty gallons of water, is recommended for its specific influence. The use of Electricity, I know to be beneficial, not only in relieving the pain, but in the form of a galvanic bath, in removing the metal from the system.

DISEASE OF THE CÆCUM.

The cæcum is to some extent beyond the direct current of the intestinal contents, and may thus suffer with derangements different from other portions. Situate below the ileo-cæcal valve, it would be more likely to suffer from impaction of fæces, and on account of its dependent position is likely to be the depot for foreign substances.

Abnormal distension, is sometimes the consequence of obstruction of the colon, but more frequently of an atony of the cæcum itself.

The distension may be of hardened, or impacted fæces, or of fæces and of flatus. Pain in the right iliac region of a colicky nature, and sometimes quite severe is the result, and from pressure on the genito-crural and dorsal nerves, there is occasionally quite severe pain in the hip, in the groin, testicles, and sometimes down the thigh in the course of the saphenous nerves. These pains may or may not be constant, and sometimes last for several days. They are relieved by the employment of cathartics that act upon the lower intestines as the Aloetic or Anti-dyspeptic Pill.

INFLAMMATION.—Inflammation of the cæcum may result from the lodgment of irritating material within it, or from its impaction with fæces. The symptoms are, at first, a dull obscure pain and weight in the right iliac region, with derangement of the bowels, generally constipation, though sometimes diarrhœa.

As the disease continues, the pain becomes more severe, is continuous, and increased by pressure; frequently it radiates to the hip, groin and testicle. The appetite is now much impaired, the tongue coated, the skin dry and harsh, and the pulse excited. A tumor is now usually perceptible on examination, though the tenderness is so great, that it is difficult to make an accurate one. Three or four days pass off in this way, there is sometimes a general peritonitis with

acute tenderness and lancinating pain, anxious countenance, cold extremities, a feeble and frequent pulse, and death in a short time. Or, the inflammation will result in the deposit of plastic lymph, agglutinating the parts together, suppuration occurs, finally opening on the surface, and discharging both the contents of the abscess and the bowels. In these cases the disease may be of many days, or even weeks duration, and attended with symptoms of great prostration.

DIAGNOSIS.—The diagnosis is very difficult, but we are guided by the location of the disease, the sudden appearance of the enlargement, the character of the pain, and the disturbance of the function of the bowels.

PROGNOSIS.—The prognosis is favorable in most cases, as the inflammation may be removed with considerable ease, in the early stage of the affection. If peritonitis results, or there is great distension from impaction of hardened feces, the prognosis is unfavorable.

TREATMENT.—The administration of the special sedatives, with a diaphoretic, as the Compound Powder of Ipecac and Opium, should be continued from the commencement until the inflammation has subsided. Cups or Leeches should be applied to the seat of the pain, and followed by hot fomentations; or if these should seem to increase the pain, cold applications. Drastic purgatives should be avoided, as they would increase the disease by the violent action they would set up. In their stead equal parts of Bi-tartrate of Potassa, and Compound Powder of Jalap and Senna, might be used in small doses, or the last named agent might be used as an enema. I have employed the *Epilobium* in one case of this disease, and seemingly with marked benefit, and would recommend it, in addition to the means already named.

“If there be evidence of suppuration, or of fecal abscess, whilst we endeavor to limit the action by slight counter-irritants, by occasional local depletion, we must sustain the power of the patient by Quinia, by support and by tonic treatment. Opium is often of great value in its anodyne and narcotic action, in checking peristaltic action, relieving pain, soothing an over-excited nervous system, the excitement of exhaustion, and often procuring refreshing sleep. When there is collapse and tympanitis, evincing perforation of the appendix or intestine, nothing should induce us to administer any aperient, or induce action from the bowels. We desire to

limit the mischief produced by checking the movement of the intestines, and to diminish inflammatory action, by soothing the nervous system; Opium must be given freely, and only a small quantity of food administered.”—(Habershon.)

DYSENTERY.

Inflammation of the large intestines is among the most frequent diseases of the digestive apparatus. It occurs at all ages, and in all climates, though it is more frequent and severe in southern latitudes. In this country it usually prevails to the greatest extent during the fall months, though sometimes met with during the summer. Occasionally it becomes epidemic, and is extremely severe, and at these times it has been claimed by some that it was contagious.

The causes of dysentery are chiefly sudden atmospheric changes, or a high range of temperature following a wet and cold season, over-exertion and arrest of secretion, the accumulation of morbid secretions in the intestinal canal, miasmata, and in the epidemic form a zymotic poison in the atmosphere.

SYMPTOMS.—Dysentery may very properly be divided into the sporadic and epidemic, and the last we will find assuming many different characters. Sporadic dysentery is sometimes preceded by constipation, but more frequently by slight diarrhœa. The patient has small mucus or bloody evacuations from the bowels, attended with tormina and tenesmus. At first they are not very frequent, but after a time they recur as often as say five to fifteen minutes. Sometimes the disease commences with a well-marked chill, but at others none is noticed. More or less febrile action will be found in all cases, the pulse hard and increased in frequency, the skin dry and harsh, the urine scanty and high-colored, and considerable restlessness and uneasiness. Pressure over the colon will usually detect a soreness in some part of its course.

Most generally in this form of the disease, the upper bowels are obstinately constipated, as the discharges consist entirely of mucus, mucus and blood, or almost pure blood; sometimes, however, it assumes the character of dysenteric-diarrhœa, the operations having more or less feculent material mixed with them, or the dysenteric discharges being alternated with diarrhœal. Day by day we observe the disease becoming severer

unless controlled by appropriate treatment, until at last the patient is very much reduced, the symptoms assuming the character of those of the epidemic form of the disease.

Epidemic dysentery occurs in two principal forms, though there are various gradations: these are, cases with obstinate constipation of the small intestines, with an active grade of fever, and cases where there is an irritability of the intestinal tract, with a low or asthenic fever.

In the first form, the disease almost always commences with a well-marked rigor or chill, followed by high febrile action. The discharges from the bowels soon become frequent, are preceded and attended by tormina, the pains being of a severe cutting character. The tenesmus or desire to evacuate the bowels is almost constant, and is very distressing during the operation; it seeming to the patient that the desire for an evacuation would never cease. No rest can be obtained during this condition, and as a natural consequence the patient is very fretful and uneasy. The discharges from the bowels are sometimes pure mucus, at others mucus mixed with blood, and again seemingly almost pure blood, in each case the material being unchanged, not dirty or discolored as in the next form of the disease.

As it continues we find that day by day the disease becomes seemingly more severe. The fever is remittent or continued, and very severe, the skin being dry and parched, the pulse hard and frequent, pain in the head and back, the tongue coated, a bad taste in the mouth and loss of appetite, the urine scanty, sometimes passed with difficulty, and anxiety and uneasiness from the almost total want of sleep from the commencement of the disease. Up to the sixth or seventh day the symptoms will be thus acute, but after that, we find the fever assuming a typhoid type, and the discharges from the bowels become discolored and offensive as in the next variety.

The second form frequently commences as above described, the fever following the chill or rigor being acute. The discharges from the bowels are small, and composed of mucus and blood, and attended with an intense tormina and tenesmus. But in the progress of the disease it is found that any cathartic will start the small intestines into action, and we have the more or less offensive feculent matter passed with the dysenteric discharges, or alternately with them. When this occurs, the typhoid symptoms described below soon make

their appearance. In other cases the discharges are semi-diarrhœal at the commencement, and we find this irritability of the small intestines and sometimes of the stomach continuing throughout the progress of the disease. This feature of the disease must be noticed, for if we should give in this case a cathartic to increase secretion from the liver, and open the small intestines, we would many times set up an irritation that we would find it impossible to quiet. Dr. Copland describes the symptoms of *typhoid* dysentery as follows: "The patient complains at first of general depression, vertigo, violent headache, increased sensibility to light, pains in the limbs and joints, and of gripings and purgings, followed by anxiety at the præcordia, stupor, foul clammy tongue and mouth, which soon becomes dry and covered by a brownish coating, a penetrating offensive odor of the breath, and intense thirst. The pulse at first is very quick and small, and afterward weak and irregular. The stools are, from the commencement, very frequent, in small quantity, preceded by tormina and tenesmus, and glairy or serous, and contain more or less dark blood. The urine is scanty, thick, and dark colored. About the fourth or sixth day, a milliary eruption or petechiæ sometimes appear about the neck, breast, arms, and abdomen, and occasionally epistaxis occurs, between the fourth and eighth days, in young and robust subjects, but without becoming critical. The intensity of the tormina and tenesmus generally diminishes with the progress of the disease, and often about the ninth or eleventh day is replaced by a colliquative diarrhœa. The stupor is now attended by delirium; the soft solids waste and become flaccid; the surface assumes a dirty hue and an offensive penetrating odor issues from the body and evacuations. If not ameliorated or arrested in its progress, this form terminates fatally from the eighth to the twenty-fourth day."

Many of these symptoms make their appearance in the last stages of epidemic dysentery, and we see cases that run their course as just described. We again find others much more malignant. By the second, or third, or fourth day, the countenance is sunk, anxious, and cadaveric, the tongue covered with an offensive brown fur, sordes on the teeth, fœtor of breath, a small, feeble and frequent pulse, great depression of the nervous system, and want of power to control the voluntary muscles. The evacuations, which were at first of a dirty

mucus, with more or less dark grumous blood, sometimes alternated by a very foetid feculent matter, now become reddish and slimy, resembling the washings of meat, or prune juice, and excessively foetid and cadaverous. The tormina and tenesmus, which at first were severe, abates, and sometimes the stools are passed involuntarily, and attended with sinking and tendency to syncope. Soon delirium ensues, the patient lies on the back, sinks down towards the foot of the bed, picks at the bed-clothes, and after lasting in this condition longer than it would seem possible, finally sinks.

DIAGNOSIS.—Dysentery is one the most easily recognized of diseases. The small mucons or bloody evacuations, the tormina and pain preceding and attending the operations, and the tenesmus or feeling as if more should pass, straining to effect it, are so distinctive as to render it almost impossible to make a mistake. The only conditions with which it could be confounded would be disease of the rectum from hemorrhoids, fissure, stricture, or sympathetic irritation from the bladder or vagina in front. But these are not attended with the constitutional disturbance of dysentery, and may be thus recognized.

PROGNOSIS.—The prognosis will depend to a considerable extent upon whether the disease is sporadic or epidemic, and whether it is an acute inflammation with vigorous reaction, or a typhoid disease. Sporadic dysentery is very easily treated, and not having seen any other, practitioners sometimes get the idea that it is an affection very easily managed, and by simple remedies, which notion is not generally lost until they lose several patients in an epidemic, and thus have to study the disease. That form of the affection in which there is manifest irritability of the small intestines, or the one described as typhoid dysentery, are most serious forms of disease, and require much care in their management. As a general rule, all the cases during an epidemic will closely resemble each other in their general features, so that after determining its character at first, we are not likely to make mistakes, especially the fatal one of mistaking a typhoid for a sthenic disease.

POST-MORTEM EXAMINATION.—The appearance of the abdomen and contents on dissection vary greatly. In some cases, on opening the abdominal wall, we find more or less of a dirty, turbid serum within the peritoneum, or the omentum agglutinated to the superficial convolutions of the intestines, and these feebly adherent to each other, from the effect of

peritonitis. The small intestines rarely present more change than this, except more or less discoloration from softening and imbibition. The colon is sometimes displaced from elongation of the longitudinal fibres, in some parts thickened, others thinned, and frequently presenting singular constrictions, as if the part had been tied with a ligature. On opening the intestine, the mucous membrane is seen to be variously discolored from a pale-grey to a greenish or violet color, and from a pale-red to a reddish-brown or black. Large portions of coagulable lymph are sometimes found partially adherent to the surface. At some points the mucous membrane seems thickened, and its epithelium detached so as to form a large irregular excoriation covered by the slimy cadaverous material which was being passed before death. At other times the ulcers are deeper, extending into the mucous membrane, through it to the muscular coat, or through this to the peritoneum, having thus set up peritonitis in the latter stages of the disease, or in some cases having perforated the entire wall of the intestine. The ulcers may be numerous and small, or large and few in number, sometimes circumscribed and well-defined, at others irregular and sloughy. In some cases we find the intestine divested of considerable portions of its mucous membrane which has passed by stool during life.

TREATMENT.—The treatment of the sporadic form of dysentery is usually quite simple. To overcome the atony of the small intestines, and stimulate the liver to action, we may give ℞, Podophyllin, gr. v; Leptandrin, gr. x; Bi-tartrate of Potassa, 3j; triturate, make ten powders, of which one may be taken every three hours, until the bowels are acted upon; or we may use the White Liquid Physic in doses of a table-spoonful every hour until the character of the operations are changed, or the Neutralizing Cordial may be used for the same purpose.

The febrile action may be controlled, if high, by the use of the special sedatives, and a solution of Acetate of Potassa; the last being specially indicated if the patient has head-ache or pain in the back or limbs.

As a local application, a sinapism followed by hot fomentations gives great relief, or an Aconite and Chloroform liniment may be used, or cold applications, or in severe cases cups answer a better purpose. If the tormina and tenesmus is very

severe, the hot hip-bath is very useful, or in its stead we may sometimes use the wet bandage.

Injections are considered by many as among the most valuable means of treatment. The most common form of enema is Laudanum and Starch water, in the proportion of half a drachm of the first to an ounce of the second; it should be carefully administered after each operation, and retained if possible. Glycerin and Opium answer a good purpose; so does the Glycerin and Belladonna, used as an injection. Sometimes large injections answer a better purpose, and a pint or even quart of tepid infusion of *Ulmus*, or simple warm water, and in other cases, the large injection of cold water has been followed by like good results.

The first form of epidemic dysentery may be treated in a similar manner to the above, though additional means are necessary. If there is any tendency to nausea, and there frequently is, I give an emetic of *Ipecacuanha*, in doses of ten grains, every ten minutes, until it acts thoroughly. I am not satisfied but that it would be much better to commence the treatment in this way in all cases. Following this I direct, \mathcal{R} , *Podophyllin*, *Opium*, āā , gr. v; *Leptandrin*, gr. xx; *M.*, and divide into ten powders, of which one may be taken every two hours, until the discharges are changed; or, instead of this, the White Liquid Physic, as before recommended, will answer an admirable purpose.

The febrile action must be moderated by special sedatives, as for remittent or continued fever, and as soon as indicated by the action of the sedative and cathartic, a solution of *Acc-tate of Potassa*. By the second day, we will usually have produced such an impression on the fever as to permit the use of *Quinia*, which should be given to the extent of from twelve to fifteen grains, divided in three doses, and taken during the forenoon. It is just as important that this treatment should be assiduously pursued as it would be in a case of remittent fever; and we frequently find the dysentery yielding easily when we have arrested the fever.

The local applications may be the same as in the preceding form. The most efficient is the wet cups to almost the entire extent of the inflamed colon, determined by the tenderness on pressure, and followed by hot fomentations. Occasionally heat seems to aggravate the pain, and the cold water bandage then answers the best purpose. Nothing gives greater relief

in some of the more severe cases, than the hot sitz bath used frequently through the day. The alkaline sponge bath should be used to assist in controlling the fever.

Injections to relieve the irritability of the rectum should always be employed, unless, as in some rare cases, they are not tolerated. Laudannm and Starch water are the most generally useful; the greatest care is frequently necessary in their use, as if introduced so as to irritate the rectum, they will be immediately rejected, and instead of doing good will do harm. The large injection of cold or warm water will be found occasionally beneficial. In some cases a solution of Acetate of Lead, five or ten grains to the ounce of water will be retained when Opium is rejected.

The second form of epidemic dysentery must be treated differently so far as the local inflammation is concerned. Here the administration of a cathartic will sometimes be followed by intense irritation of the small intestines, and very severe symptoms difficult of control. At first I direct the special sedatives, Aconite and Veratrum, as recommended in fever, and give half an ounce of Sweet Oil with two grains of Leptandrin every two hours, until the bowels have been evacuated once. In some cases the White Liquid Physic, but more frequently the Syrup of Rhubarb and Potassa may be used for the same purpose, as may also some of the milder laxatives. After having tried all the means recommended for this purpose, I am satisfied that pure Olive Oil is by far the best agent that can be used, as it stimulates the removal of irritating matters from the intestine, and at the same time seems to soothe and quiet irritation. It may be repeated as often as it seems necessary to change the character of the discharges.

Following this, I order one grain of Opium with two grains of Leptandrin every three hours in the afternoon and evening, or sufficiently often to control the pain, reserving the forenoon for the administration of Quinia. Usually the continued administration of the sedatives, with the judicious use of the bath will have produced a marked impression on the accompanying fever by the morning of the second day, though sometimes not before the third. Now give Quinia, gr. iv; Hydrastin, gr. ij; every three hours until two or three doses are taken. At the same time I find it useful to give a diaphoretic, which in this case would be, R, Carbonate of Ammonia, 3j; Essl. Tincture of Dioscorea, Essl. Tincture of Asclepias, āā,

ʒss; Chloroform, ʒj; Glycerin, Simple Syrup, āā, ʒj; M.; of this a teaspoonful may be given every two hours, causing gentle secretion from the skin and kidneys, and at the same time aiding in relieving the pain.

I am well satisfied that Opium, as above recommended, instead of doing harm, as some suppose, has a very marked action in allaying the inflammation, though I should not be willing to give it as recommended, without first evacuating the bowels and quieting the fever. In some cases the first medicine given sets up nausea and retching, the stomach being so irritable that remedies can not be retained. In such case I should give an emetic of Ipecacuanha, and in addition to the emesis would generally find that it had evacuated the bowels.

The injections and local applications heretofore named should be employed, as very much depends upon their action. If in the later stages there is general tenderness of the bowels with tympanitis, equal parts of Turpentine, Tincture of Xanthoxylum and Olive Oil applied to the entire abdomen with a cotton cloth is very efficient. As additional injections, when the discharges have assumed that peculiar cadaverous character in the typhoid stage of the disease, we may use the solution of Chlorinated Soda, from fʒss to fʒj to the Oj of Water, or the Sulphate of Zinc, ʒj to the Oj of water, the injection being used in large quantity.

In the typhoid form of the disease I see no cause to change the treatment above named. The addition of Chlorate of Potassa to the diaphoretic of Aselepias, or the use of a weak solution as a drink is important, as is the free use of stimulants. Farther than this the disease should be treated as recommended for typhoid fever.

It may be well here to speak of other means that have been employed in the severe stages of dysentery. The vegetable astringents are used with advantage, in some cases where there is more or less diarrhœa following the action of a cathartic, and sometimes in the later stages of the disease. The Geraniin, Tannic Acid, Catechu, Kino, Stictic, etc., have been used in these cases. The Epilobium, in infusion, is sometimes sufficient of itself to cure dysentery, and is an excellent adjunct to the treatment heretofore named. Bismuth, as in the following formula: R, Sub-nitrate of Bismuth, ʒj; Aqua Mentha Vir., ʒiij; M.; shake well and give in teaspoonful doses every hour or two, is an excellent remedy for sporadic dysentery in

children, and may occasionally be used with advantage in other forms. The treatment with Ipecacuanha, giving it in doses as large as the stomach will tolerate until it opens the bowels, and the dysenteric symptoms cease, has been attended with good results in many cases. In the later stages of the disease, the administration of an infusion of White-oak bark in doses of a tablespoonful every hour, with an injection of the same, is useful in some cases. Chloride of Silver in doses of two or three grains four or five times a day, has been highly recommended in the later stages of dysentery, and is decidedly preferable to the Nitrate. When the discharges are offensive and resemble the washings of meat, injections of Creosote, 3j to Starch water, 3xij, is recommended. Ergot, with Tincture of Iron was given by Mr. Gervis, with good results. In obstinate cases these means may be tried in conjunction with the treatment before named, but I would not advise reliance upon any single agency.

CHRONIC DYSENTERY.

Chronic inflammation of the large intestine may result from an acute attack, or be excited by diarrhœa, by acrid material within the intestinal tube, or from long-continued exposure to malarial influence in a hot climate. Like all other chronic inflammations there is but little tendency to spontaneous cure, and the constitutional disturbance usually increases in proportion to its duration. Occasionally we find cases in which it has continued for years, usually as a gleet discharge from the rectum, or lower part of the colon, and produces much less constitutional disturbance than we should suppose. Quite frequently we find it associated with disease of the liver or spleen, and a marked impairment of the blood-making organs.

SYMPTOMS.—The prominent symptom of the affection, is, more or less frequent discharges from the bowels, attended with more or less pain and tenesmus. The discharges vary greatly in character, sometimes a whitish-gray, or yellowish mucus, occasionally mixed with blood, but more frequently with feculent matter. In some cases all the discharges are feculent, but of small size, and at the last part the mucus is discharged with tenesmus. In severe cases, the discharges

are reddish, pultaceous, with more or less pus, and very offensive. The small intestine may be either irritable, or torpid; in the first case the feces are discharged in a fluid form; in the second, usually in hard masses, sometimes scybalous. In some rare cases we find more or less fluid feculent material with every discharge, and suppose from this that the small intestines are acting, but the administration of a cathartic, will bring away large masses of scybala.

The condition of the general health varies greatly, usually we find a dry, harsh skin, imperfect action of the kidneys, irregular appetite, more or less pain in the head, and in various parts of the body, with great loss of flesh and strength. In some cases these symptoms are very marked, the patient being confined to his bed a considerable part of the time.

Where the disease was contracted in a hot climate, the skin is frequently sallow and yellow, dry like parchment, or relaxed and flabby. In severe cases the disease is complicated with an intermittent fever, recurring every day, every other day, or at intervals of a week; all the dysenteric symptoms being aggravated at these times. The disease continuing, terminates fatally by exhaustion, or by ulceration and perforation, or more frequently by inducing an asthenic condition terminating in disease of the lungs, liver or brain.

DIAGNOSIS.—Chronic dysentery is one of the most easily recognized of diseases, though the condition of the bowels and the complications are hard to determine.

PROGNOSIS.—Where of not very long standing, the general health being pretty good, there is not much difficulty in its removal; but if of long duration, the general health being severely affected, and evidence of considerable structural change, the prognosis is uncertain.

POST-MORTEM EXAMINATION.—As in the acute disease, we find the bowel more or less discolored externally, with thickening in some places and thinning in others, appearance of stricture as before named, and more or less displacement; dilatation of some parts and stricture of others, is of quite frequent occurrence. On opening the bowel, the mucous membrane is seen variously discolored, dusky-red or brownish, or ash-gray, thickened at some points, and divested of epithelium, and at others well defined ulcers, sometimes small and aggregated, at others large, the borders sharp cut and well defined, or irregu-

lar and sloughy. The stomach, liver, spleen and small intestines, are found affected in some cases, as is also other portions of the body.

TREATMENT. — The cure of chronic dysentery is usually a slow process, requiring care, patience and perseverance. Occasionally we find that one remedy, as the *Epilobium*, taken constantly, and for a long period, will accomplish it, but this is not generally the case. Among the measures employed, the irritating plaster holds a prominent place; it should be applied in the course of the colon, wherever tenderness is detected. Frequently its use so as to produce a crop of pustules, and then ceased until the irritation subsides, answers the purpose; in other cases it should be continued to produce free suppuration. The general bath is also an important feature of the treatment, for if the skin can not be stimulated to normal action, there is but little hope of arresting diseased action of the colon. We may use the alkaline or Salt-water bath, with brisk friction, or in some cases the entire warm bath, or sitz bath; or it may be rendered stimulant by the addition of *Capsicum* in cases of deficient circulation; or, tonic and astringent by the use of a decoction of those agents, in cases of relaxation and atony.

Among the general measures none are more important than those restoring the function of the kidneys and stomach. The saline diuretics are applicable in all cases in which there is headache, a foul tongue and disordered digestion, and may be continued in small doses for weeks. If there is febrile action, as is the case frequently, *Quinia* with *Hydrastin* should be employed. In other cases a gentle bitter tonic, as of *Cornus*, *Collinsonia*, *Populus*, etc., with some preparation of Iron, will suffice. Occasionally benefit is derived from the use of Cod-liver Oil and the Hypophosphites.

For the dysentery different means are employed according to the condition of the bowels. Sometimes the administration of minute doses of *Podophyllin* with *Leptandrin*, thoroughly triturated with Loaf Sugar, answers an excellent purpose; to render it tonic and gently stimulant, *Hydrastin* and *Myricin* may be added, and to alternate, the *Trilliin* and *Euonymin* may replace the two last. Where there is tendency to atony of the small intestines, with torpor of the liver, a better combination could not be asked. The White Liquid Physic, followed by *Quinia* and *Hydrastin* is highly recom-

mended by my friend Dr. Milton L. Thomas, and from its action in the acute form, I am led to believe that it will be found useful. If there is relaxation of the entire intestinal tract, the Geranium, with Leptandrin and Dioscorea answers well; or, having restored the functions of the other excretory organs, we may use the Per-sulphate of Iron, in doses of three grains four times a day. It is in this case that we get the most decided action from the Epilobium.

As regards injections, they are sometimes useful. In sub-acute cases, those named under the head of acute dysentery may be employed. If there is great irritation about the rectum, a strong decoction of the inner bark of the Common Elder, with an equal quantity of Glycerin is very efficient, as is also the use of a suppository of Belladonna, or an injection of Sulphate of Zinc with Morphia. Large injections are sometimes employed, as of cold or warm water, an astringent or tonic infusion; or of Chloride of Lime or Potassa, Sulphate of Zinc, Creosote, etc.

In one case the disease seeming to be confined to the sigmoid flexure and rectum, a decoction of *Alnus*, *Rumex*, and *Quercus Rubra*, to the amount of a pint, was used as an injection three times a day, curing the patient in about four weeks, the disease having lasted seven years.

When the disease is stubborn and attended with tenesmus and feeling of irritation in the rectum, it is well to examine it with a speculum, to determine if there is not structural lesion that keeps up the irritation. In one case, the patient having suffered for some three years, and passed through the hands of several practitioners, applied to me for treatment; I employed all the means that I could think of as likely to be beneficial, for four months, but without any permanent advantage; and was about to discharge him as incurable, when my attention was casually drawn to the condition of the rectum, by his complaining of a sharp cutting pain at the edge of the anus. On examination I found a fissure about an inch long, and a small polypoid excrescence situate just above it. In a moment this growth was snipped off with the scissors, and an incision was made through the entire extent of the fissure, about a line in depth. All irritation seemed to disappear, and in ten days not a vestige of dysentery remained. In another case of nearly as long standing, three internal hemorrhoids were found, and a herpetic eruption covering the entire mucous

membrane. This was removed by the application of a solution of Perchloride of Iron, one part, to two of water.

INTESTINAL WORMS.

Intestinal worms may be considered an evidence of disease of the mucous membrane, rather than as a disease itself, as it is only because the germs of these entozoa have found a nucleus in the deranged structure of the bowels, that the worms are developed.

It is yet doubtful how some of them originate, but as the German naturalists have recently determined the origin of the *tænia*, we may at once give up the idea of spontaneous generation, and by still further research, will doubtless find that their mode of transmission from one body to another is a very simple matter. Thus in the case of the *tenia solium*, it has been traced from the *cysticercus* of the pig, through all its gradations up to the fully formed worm. These cysticerci are very tenacious of life, and may get into the intestinal canal by eating raw or partially cooked fresh pork, or even bacon.

When once introduced, their development goes on until the worm is fully formed; each joint contains a multitude of eggs, which being discharged with the intestinal contents, regains its original habitat, the hog, is developed into a cysticercus, which in turn by transplantation, will form a *tænia*. I have not space here for a full description of the various stages, and would refer those curious upon the subject to the work of Küchenmeister.

The principal varieties of intestinal worms, are: the *ascaris lumbricoides*, the *ascaris* or *oxyurus vermicularis*, the *trichocephalus dispar*, and the *tænia solium* and *vulgaris*.

The *ascaris lumbricoides*, or long round worm, is described by Dr. Good as having a slightly incurved head, with a transverse contraction beneath it; mouth triangular; body transparent; color, light yellow, with a faint line down the side; gregarious, vivacious; from six to fifteen inches long; inhabits principally the ileum, but sometimes ascends into the stomach, and creeps out of the mouth and nostrils; occasionally travels to the rectum, and passes away at the anus.

The *ascaris vermicularis*, or small thread worm, has its habitat in the rectum, though it sometimes gets into the intestines, and occasionally in the female, into the vagina.

"The head is subulate, nodose, and divided into three vesicles, in the middle of which it receives nourishment; skin at the sides of the body finely crenate or wrinkled; tail finely tapering and terminating in a point; gregarious, viviparous: and about half an inch long."

The *tricocephalus dispar*, or long thread worm, is found in the intestines both large and small, and in the stomach, and specially in sickly children and those who are poorly nourished.

"The body is obese, slightly crenate, beneath smooth, finely striated on the fore part; the head obtuse and furnished with a slender retractile proboscis; tail or thinner part twice as long as the thicker, terminating in a fine hair-like point; about two inches long and its color light yellow."

The *tania solium*, or long tape worm, is described by the same author, "as having long and narrow articulations, with marginous pores, by which it attaches itself to the intestines; one on each joint generally alternate; ovaries arborescent; head with a terminal mouth, surrounded with two rows of radiate hooks or holders; and a little below on the flattened surface, four tuberculate orifices, or suckers, two on each side; it is from thirty to forty feet long, and has been found sixty. Inhabits the intestines of mankind, generally at the upper part, where it feeds on the chyle and juices already animalized. Is sometimes solitary, but commonly in considerable numbers; and adheres so firmly to the intestines, that it is removed with great difficulty. It is said to have the power of reproducing that which has been broken off; but this assertion wants proof. The animal is oviparous, and discharges its numerous eggs from the apertures in the joints." The articulations are from four to six lines in length, and nearly as much in width, and resemble gourd or melon seeds.

"The articulations of the broad tape-worm are short and broad, with a pore in the center of each joint, and stellate ovaries around them; body broader in the middle, and tapering toward both ends; head resembling the last; inhabits the upper part of the intestines, and feeds on the chyle; from three to fifteen feet long; usually in families of three or four."

SYMPTOMS.—With many if not all forms of worms, it is necessary that the bowels be in a condition to furnish a comfortable habitation. This condition is essentially one of want of tone, with, in many, increased secretion of intestinal mucus.

We observe in many cases that the child or person is poorly nourished, the muscles are soft and flabby, there is a loaded tongue, bad breath, and derangement of the secretions. We are not inclined to believe that this is the result of worms, but simply coincident with them, and in some cases the patient has what is termed *worm fever*, usually of an intermittent or remittent character, the paroxysms occurring in the afternoon and evening, at which time we find the skin hot and dry, the pulse frequent, the head hot, and marked irritability and restlessness, and occasionally convulsions. Or the fever may be more obscure, the child is fretful and nervous, sleeps poorly, its breath is fœtid, tongue coated, bowels irregular, abdomen tumid, is frequently picking its nose, the upper lip swells, a white line appears around its mouth, and it seems to be out of order generally. These are the symptoms of the first named varieties, though not nearly so well marked in the case of the *ascaris vermicularis*. Though seeming to be very plain, yet all these symptoms may be present, and no worms; or worms present, and but few of these symptoms. The only certain evidence of the existence of worms is their presence in the fæces, and even then we can not be certain but that all have passed. The *ascaris vermicularis* makes itself known by an intolerable itching and crawling sensation about the anus. At first it generally comes on after the little patient gets warm in bed, the irritation being so great that sleep is impossible; at last, they are more or less troublesome all the time. The irritation is occasionally so great as to impair the health, and occasionally gives rise to convulsions.

As regards the symptoms of tape-worm, they are very deceptive. In one hundred cases recorded by Seeger, in sixty-eight instances nervous affections, or general or partial convulsions accrued—epilepsy, hysteria, abdominal spasms, convulsive cough, dyspnœa, melancholy and hypochondriasis; in forty-two, various pains in the abdomen; in thirty-three, disordered digestion and irregular states of the evacuations; in thirty-one, irregular appetite and voracity; in nineteen, habitual or periodical hemieranias; in seventeen, sudden colic; in sixteen, sensations of undulatory movements in the abdomen up to the chest; in fifteen, vertigo, delusions of the senses, and defects of speech; and in eleven, shifting pains in various parts. The only definite evidence of the presence of tape-worm is the passage of portions of it with the

faeces, and as this usually occurs with this worm, the non-appearance of the joints in the evacuations during a considerable time, may usually be considered as good evidence that the worms do not exist in the intestinal canal.

TREATMENT.—The treatment of the *ascaris lumbricoides* and *tricocephalus* will be very similar, the object being to remove the worms, and break up the predisposition to them by removing the condition on which they depend. Very many vermifuge remedies have been recommended and used with success, so that the trouble will be, not that we have no remedies, but that we have too many. The old-fashioned remedy, “Pink and Senna” in infusion, seemed to be about as certain as any other agent, and I am satisfied, that if it was as disgusting to the worm, as it is to the child, it would readily leave its nest in the bowels, rather than take the dose. Still it is not more nauseous than the Oil of Wormseed, which is an ingredient of all the principal vermifuges—as, R, *Oleum Chenopodii*, 3x; *Oleum Terebinthinæ*, 3ij; *Oleum Ricini*, 3iij; *Aqua Calcis*, 3x; *Syrupus Limonis*, 3vj; M.; the dose being two teaspoonsful three or four times a day. *Küchenmeister* recommends the Santonine, and the Santonate of Soda, for the *ascaris lumbricoides*; he considers it to be best administered in Oil, in order to bring it into solution as readily as possible, and thus combine it with Castor Oil, or sprinkle it on bread and butter, and follow it with Jalap and Senna. Troublesome effects sometimes follow the administration of this remedy, as severe irritation of the nervous system, convulsions, tenesmus, bloody stools, and the minor disturbances, green or bluish vision, and discoloration of the urine. The Santonate of Soda he gave in doses of from two to six grains on a Friday night, and the same dose on Saturday and Sunday mornings fasting; half an hour after this last powder, confection of Senna and Jalap is taken in sufficient doses to produce several fluid evacuations, the worms passing alive, and sometimes wandering forth without any operation, the intestines having become unpleasant for them.

A judicious tonic course of medicine, the bowels being kept regular, and the other secretions free, with an avoidance of all grease or indigestible food, the daily use of the bath, and exercise in the open air, are the only means by which we can break up the tendency to the formation of worms.

Many remedies have been recommended for the *ascaris ver-*

micularis, but in my opinion all vermifuge medicines should be discarded. If the patient's bowels are irregular, proper means should be taken to overcome the difficulty, and if necessary a tonic and bracing treatment adopted. For the worms I have always directed an injection of Salt and cold water, in the proportion of a teaspoonful, to half a teacupful and so far with invariable success.

For the removal of *tænia* we may use Turpentine, as the formula of Küchenmeister, \mathcal{R} , Oil of Turpentine, Castor Oil, Honey, āā , $3j$; to be beat up with the yolks of three eggs, and taken at bed-time in divided doses, but within an hour. In some cases, he remarks, it is best to give Turpentine in doses of $3ij$; at once in the morning, fasting, and if it does not operate, follow with Castor Oil. It is a very effectual medicine, but extremely nauseous, and sometimes irritating to the bowels and urinary organs. The Pomegranate bark (*Punica granatum*) has been used for the removal of the worm: eight ounces of fresh bark being boiled with three pints of water to two pints, and taken in divided doses at short intervals until the worm is expelled. The objection to this treatment is, that it frequently produces violent vomiting, colic and purging, a sufficient amount of the remedy not being retained to accomplish the object. The Male Fern has proven a very successful remedy; previous to its administration the bowels should be well moved with the Podophyllin Pill, or Compound Powder of Jalap and Senna, and from $3ss$ to $3jss$ of the *Ætherial Oil* administered in mucilage or milk, in the evening, fasting. If all the worm does not pass, which is known by finding the head, the remedy may be repeated in two or three days, in the same manner, and continued until it has all passed. The *pumpkin seed* treatment is highly praised by some: two ounces of the seed should be deprived of their capsules, beat into a pulp, with sugar and water, and taken upon an empty stomach: in two hours a dose of Castor Oil. The remedy should be repeated every other day until the entire worm is expelled. The *Brayera Anthelmintica* or *Kosso*, was highly lauded at one time, though at present it has had to give way to the Male Fern: $3ss$ of the flowers are infused in \mathcal{Oss} of Water, and taken in the course of one hour on an empty stomach; it should be followed in two hours with Castor Oil, and repeated every two or three days until the entire worm passes.

STRICTURE OF THE RECTUM.

Stricture of the rectum, may be either structural or spasmodic, most generally a union of the two, as we have no reason to believe that spasmodic action could take place to such an extent as to obstruct the bowel, at least for any considerable time. Stricture may result from chronic inflammation, from hæmorrhoids, from fistula, from cancerous diseases, and in some cases without apparent cause. It consists essentially in thickening of the intestine by interstitial deposit or effusion of fibrous material, and the contraction, as is frequently the case with this material. It may occur at any portion of the rectum, from the verge of the anus to the promontory of the sacrum, and rarely as stricture of the colon.

SYMPTOMS.—The symptoms of stricture of the rectum make their appearance slowly, usually as difficulty in defecation. If the bowel become costive, and the feces hard, the difficulty is very marked, but when semi-fluid it is not noticed; it is also found to be worse from any cause that would excite irritation and spasmodic action. When further advanced, the passage of feces is more difficult, and they are ribbon-like in form, and sometimes streaked with mucus, pus, or blood. Occasionally it seems as if the patient could not have an evacuation at all, there is extreme tenesmus, with colicky pains in the abdomen, a feeling of prostration and weakness in the lower portion of the body. Continuing, it finally causes marasmus, and severe cachectic disease setting in, terminates the life of the patient.

In cancerous disease of the rectum, there is more or less sharp lancinating pain, sometimes seeming to be confined to the anus, at others extending to the hip, or down the thigh. Passing to the stage of ulceration, there is more or less discharge of sanies or imperfectly formed pus, and in some cases serious hemorrhage.

DIAGNOSIS.—Stricture of the rectum is diagnosed by the symptoms above named, and especially by the ribbon-like appearance of the feces. On examination an obstruction is determined in some portion of the rectum, the canal being of variable size; if covered by malignant disease, it will have that hard nodose feel characteristic of these affections.

PROGNOSIS.—Usually the prognosis is unfavorable, for even though the stricture is temporarily removed, it is very certain to again recur; still some cases may be permanently cured.

TREATMENT.—In the treatment of this affection, it is very essential that the bowels be kept in a soluble condition, and all causes of irritation avoided. An easily digested diet, and one that leaves but little debris, should be recommended, which with the use of brown bread, and the taking of a glass of cold water before breakfast, will maintain the bowels in the best possible condition. If a laxative is necessary, Sulphur, Podophyllin, and Hyoscyamus, as, R, Podophyllin, gr. v; Sulphur, 3ij; Extract of Hyoscyamus, 3j; White Sugar, q. s., to make a powder, and divide in twenty parts, of which one may be taken morning and night. It is sometimes useful to add a bitter tonic, as the Hydrastin.

To relieve the irritation of the rectum, and consequent spasmodic action, a suppository of Belladonna, with butter of Cacao, will be found efficient. If there is ulceration, an injection of a decoction of Hydrastis, Cornus and Rumex, may be employed. For the permanent cure it is necessary that the stricture should be dilated with graduated bougies—for which see Surgery.

FISSURE OF THE RECTUM.

This is an exceedingly troublesome affection, and exerts a very injurious influence on the general health, causing in some cases derangement of the digestive organs, irregularity of the bowels, and great suffering and prostration. The symptoms are: a sensation of burning in the rectum, with sharp lancinating pains, and frequent feeling of tenesmus. There may be sometimes a small portion of mucus or blood detected in the feces. Occasionally it gives rise to irritation of the urinary and genital organs, which proves intractable, until the fissure is removed. A very severe case of uterine disease, in my practice, with irregularity of the menses, and profuse leucorrhœa, which resisted all treatment, was readily cured by determining the existence of fissure of the anus, and removing it; this may be taken as an instance of the effects resulting from fissure.

TREATMENT.—The treatment, though surgical, is very simple, and remarkably successful, which can not be said of the old plan of cauterization with Nitrate of Silver, Nitric Acid, Chloride of Zinc, etc. The part having been exposed with the anal speculum, an incision is made with a bistoury, or scal-

pel, the entire length of the fissure, and about a line in depth; if the edges are hardened and irregular, they may also be trimmed. Nothing further is necessary, the cure being speedy and without suffering, and the patient relieved, in a few days, of a train of unpleasant symptoms which have afflicted him for months.

HÆMORRHOIDES.

Hæmorrhoides or piles occur at all ages, but are most frequent after middle life. They occur usually in persons of a plethoric habit, and with the venous system prominently developed, and especially in those who have unduly stimulated the intestinal tract. Persons who have for years led an active life, but have become sedentary, are especially liable to them, as are also those of sedentary habits, and those whose work is heavy and straining. Frequently, however, we find all preconceived ideas of the cause of the disease at fault, as it occurs in the most opposite conditions.

Constipation is a frequent exciting cause of hæmorrhoides, and diarrhœa an occasional one. Torpor of the liver, and consequent congestion of the portal veins is an important element in some varieties.

Hæmorrhoides are divided into external and internal: the external being without the sphincter ani, and covered by the skin, or partly with skin, and partly with mucous membrane; the internal being within the sphincter, and covered with mucous membrane. An external hæmorrhoid consists of an extravasation of blood into the cellular tissue from a ruptured hæmorrhoidal vein. The blood coagulates, and the fibrous tissue surrounding it becomes condensed, so as to form a hard nodulated mass. Or, in other cases, the tumor is formed by the dilatation of a hæmorrhoidal vein, the blood coagulating in it, and communication with the vein being entirely or partially shut off. On the contrary, an internal hæmorrhoid consists of a congeries of arteries and veins, in a varicose condition, forming as it were an aneurism by anastomosis, or an erectile tumor. The tissues entering into the formation of the hæmorrhoid are all hypertrophied, and the arteries and veins enlarged. It will thus be seen that there is the most marked difference between the two kinds, the external being non-vascular, and having but an indirect connection with the

abdominal circulation; and the internal being very vascular, or closely associated with the condition of the abdominal viscera. On thus studying the character of these hæmorrhoides, we can readily see why the treatment for one should fail in the other.

SYMPTOMS.—The symptoms of external hæmorrhoides, is a sense of fullness and pressure near the anus, with, in some cases more or less of a sharp lancinating, or dull, heavy, aching pain. The internal hæmorrhoides give rise to various symptoms, according to their size and position. Usually there is a feeling of warmth in the rectum, increased when the bowels are moved, and amounting to quite severe pain if the tumors are large. When of considerable size they pass down during each operation, and more or less blood is discharged at this time, giving them the name “bleeding piles.” Sometimes this hæmorrhage proves such a drain upon the system, as to render the patient weak and anæmic. At certain times the tumors become congested, and having once passed down, can not be returned, but form a large red, nodulated mass, protruding through the anus, and giving rise to uneasiness, pain, and frequent constitutional disturbance.

DIAGNOSIS.—The diagnosis of hæmorrhoides is easily made by examination; the presence of enlargement near or within the anus being readily detected. We determine external hæmorrhoides, by their being without the sphincter, and partly covered by skin, and hard and nodulated: the internal by their florid color, covering of mucous membrane, and being within the sphincter, which is their natural position.

PROGNOSIS.—With proper treatment, almost all forms of hæmorrhoides may be radically cured.

TREATMENT.—In the case of external hæmorrhoides, we may sometimes succeed in removing them by the use of astringents, as a saturated solution of Tannic Acid, or what is better, a solution of Persulphate of Iron; or sometimes the local application of cold, as ice, or ice water. A much better plan, and one that is without danger, and certain in its results, is to make an incision into the tumor, and turn out its contents. The patient should be kept quiet, for two or three days, and a cold compress applied, the part usually healing kindly. Studying the anatomy of this form of hæmorrhoides, it will be readily seen why this is the best treatment, and one applicable in all cases. If much hæmorrhage should occur, it may be controlled by pressure, or an injection of a solution of Perchloride of Iron

into the opening. Under no circumstances must this treatment be used in cases of internal piles, as they being extremely vascular, the patient's life would be endangered from hæmorrhage.

It will be recollected that the hæmorrhoidal veins entering into the formation of internal hæmorrhoides are the most dependent parts of the portal system, this is the reason why the tumors should be so intimately associated with derangement of the intestinal canal. As a general rule, it may be stated, that, internal hæmorrhoides are almost invariably caused by derangement of those organs, and that this is a continuously acting cause, no matter how long the disease has lasted. Hence the importance of means for removing congestion of the intestinal circulation, stimulating the liver to normal action, and overcoming constipation.

Many cases of hæmorrhoides may be cured by appropriate internal treatment. Thus, in cases of sluggish action of the bowels and liver, which in a large majority of cases is an attendant, I direct Sulphur Subl., ʒij; Podophyllin, gr. v; Extract of Leptandra, gr. xx; Phosphate of Soda, ʒss; mix and divide into twenty powders, of which one may be taken morning and night; or it may be made into a lozenge, by the addition of Gum Arabic and Simple Syrup; or united with Simple Syrup and Honey, may be taken as a conserve. Another very good formula, is R, Podophyllin, gr. x; Extract of Nux Vomica, gr. iij; Extract of Leptandra, ʒj; Extract of Hyoscyamus, ʒss; M., and make forty pills, of which one may be taken morning and night, if necessary; or equal parts of the Extracts of Podophyllum, Hydrastis, Leptandra, Apocynin and Xanthoxylum, made into pills of usual size, and taken morning and night, also answer a good purpose. It will be seen that the object of this treatment is to stimulate the bowels to action, and get free circulation from the portal veins, thus relieving hæmorrhoidal congestion. The Conval-laria, chewed and swallowed frequently through the day, or taken in infusion is sometimes of great assistance. A very essential part of the treatment is to restore the skin to its normal condition, by the use of appropriate baths and friction. If as is usually the case, there is relaxation of the perineal structures, use the Salt hip bath, with thorough rubbing of the lower portion of the abdomen, pelvis and thighs; this bath should be used cold if possible. Other means that would

seem to be indicated, by the condition of the patient, should be employed, as it is essential to obtain the best possible general health.

As a local application, nothing is better in a great number of cases than an injection of ice-cold water in small quantity, or its application if the piles are extruded. In some cases when they were down, forming a large mass impossible of replacement, I have used powdered ice and salt in a bladder, carefully applied, so as not to produce sloughing of the entire tumor, with the most marked relief from suffering, and rapid diminution of the tumors. In one case the application being left to the care of the nurse and patient, they continued it until the entire mass (nearly as large as a goose egg) was completely frozen; it sloughed off by the fourth day, the patient recovering without trouble, and not having since had the slightest return of the malady; though successful in this case, I should not like to repeat the remedy. The vegetable astringents are frequently used with advantage in mild cases, as \mathcal{R} , Tannic Acid, $\mathfrak{z}\text{ij}$; Morphia Sulph., gr. v; Adeps, $\mathfrak{z}\text{ij}$; M., to be applied to the tumors, two or three times daily. Or Nut Galls, $\mathfrak{z}\text{ij}$; Opium, Camphor, Acetate of Lead, $\mathfrak{a}\mathfrak{a}$, $\mathfrak{z}\text{ss}$; Lard, $\mathfrak{z}\text{j}$; mix thoroughly and anoint the hæmorrhoides two or three times a day. Tobacco has been employed in these cases, and sometimes with marked advantage; it may be used in various ways; the common plug, or a cigar may be wet and softened and introduced into the rectum; or a strong infusion may be applied to the tumors; or it may be used in the form of an ointment, as \mathcal{R} , Tobacco, Stramonium, $\mathfrak{a}\mathfrak{a}$, $\mathfrak{z}\text{j}$; freely pulverize and mix thoroughly with Lard, $\mathfrak{z}\text{ij}$.

Among the most efficient means I have used, is the solution of Persulphate of Iron, applied to the tumors with a camel's hair pencil. In some cases it may be used in full strength, in others it will have to be diluted with from one to three parts of water.

In some cases, as when they have resisted the means above named, a radical cure may be effected by *ligation*, the only proper operation for this affection.

The operation is easily performed, the tumors being exposed and the extremity seized with toothed forceps, or a tenaculum, a waxed thread of saddlers' silk, is applied around the base, drawn tightly and tied in a double knot. Sometimes, where the base of the hæmorrhoid is large, it is necessary to transfix

the tumor with a needle carrying a double thread; or, in some bad cases, crucially, having four threads, and tying the ends tightly, so as to include a portion in each ligature. After the application of the ligature, the patient should keep quiet until they separate, and if there is much heat and irritation, cold water may be used freely. The ligature should never be applied to external hæmorrhoids, unless the integument is freely excised, so that none of it will be included in the loop; neither should an internal pile be ever excised, or burned with caustics.

NEURALGIA OF THE RECTUM AND ANUS.

Neuralgia of the rectum and anus is not of unfrequent occurrence, and is especially worthy of notice, as being sympathetic of other and more serious affections. A person suffering pain usually imagines that he could bear it with more fortitude if it was located at some other point than the one affected, and yet there are some parts in which the pain seems more intolerable than others, for instance, of the ear, the testicle, or the eye; but of all pain that I have ever witnessed or experienced this is the hardest to bear.

We notice it in affections of the bladder and prostate gland in the male; in cancerous diseases of the pelvic viscera in both male and female; and in diseases of the uterus, ovaries and vagina in the female. In other cases we find it existing for a longer or shorter time without any apparent cause. It is characterized by sharp lancinating or tearing pains in the region of the anus, shooting upward to the loins, back, genito-urinary organs, and in some cases to the hip joint, and down the thigh. In some cases defecation is very painful, as is also micturation, the urine being discharged in drops or jets, with a scalding sensation.

TREATMENT.—In many respects the treatment will be similar to that adopted in other cases of neuralgia. Thus, if dependent upon cold, we would use the spirit vapor bath, with a diaphoretic as the Compound Powder of Ipecac and Opium, an alkaline diuretic and a mild cathartic. If periodic in its character, Sulphate of Quinia, in full doses, should be given and repeated as often as seemed necessary. If we can detect the lesion giving rise to it, our treatment should be directed to this, in the meantime palliating the pain. Among the most

efficient palliatives, is the use of the suppositories of Morphia, Belladonna, Stramonium. Tobacco, etc., the use of cold water the vapor of Chloroform, Carbonic Acid Gas, both of which may be introduced into the rectum by a rubber tube connected with the retainer. Counter-irritation is sometimes efficient, as is also the external application of Aconite, Belladonna, Chloroform, etc. If the pain resists these means, it may almost invariably be controlled by the sub-cutaneous injection of one-eighth grain of Morphia in solution, repeated as often as necessary. Though it is impossible to rationally account for the result, experience has proven that these diseases may be radically cured by this means, when not amenable to any other treatment.

PERITONITIS.

The serous membrane lining the cavity of the abdomen, and investing the principal viscera, may be the seat of inflammation, either affecting but a part, or involving the whole membrane. As regards the causes of the affection, we find that it may be produced by cold, over-exertion, etc., as in the case of other inflammations; but it more frequently arises from disease of some organ or part receiving an investment from it, or from injuries. The inflammation may be sthenic, asthenic or chronic, though we usually see it as an acute inflammation, with marked constitutional disturbance. As before remarked, it is most generally confined to a small portion of the membrane, but what is most singular, is, that opposite surfaces are involved in the inflammation. Like other inflammations, it may terminate in resolution, frequently in effusion of plastic lymph, serum, etc., and formation of false membrane, or adhesions.

SYMPTOMS.—The symptoms of acute or sthenic peritonitis are well marked; usually commencing with a marked chill or rigor, high febrile action, with quick hard pulse, hot, dry skin, furred tongue, headache, and arrest of the secretions is developed. The patient complains of sharp lancinating or tearing pain in the part affected, or, if enteric, of the whole abdomen. There is exquisite tenderness on pressure, and the patient lies on the back and draws the thighs up, to take off the tension of the abdominal muscles. As the disease progresses, the pain becomes more acute and severe, the patient suffering

intensely. The pulse is now wiry and very rapid, and the tenderness so exquisite that the patient can not even bear the weight of the bed clothes. Tympanitis ensues, the abdomen being prominent, which also seems to increase the suffering. In from two to six days, effusion takes place, with an abatement of the pain. If the disease still progresses, there is marked prostration, with a dark-brownish tongue, sordes on the teeth, low muttering, or in some cases wild delirium, subsultus, jactitation, picking at the bed-clothes, and death.

In the sub-acute or asthenic form, it usually results from disease of some of the abdominal viscera. The pain is not so acute and exquisite as in the preceding case, but is well-defined and attended with marked tenderness on pressure. The fever is generally remittent in character, sometimes a hectic fever, with night sweats. The disturbance of the general health is very marked, and there is derangement of almost all the functions of the body. A considerable portion of the general symptoms will undoubtedly depend upon the visceral disease causing the peritonitis.

The chronic form of the disease is of rare occurrence. Usually associated with visceral disease, it is very difficult to separate the symptoms, and sometimes impossible to determine the existence of peritonitis until after death. Tenderness on pressure and evidence of local effusion are the most prominent symptoms, though we have frequently good reason to suspect the involvement of the serous membrane, from the aggravation of the symptoms and their disproportion to the original disease.

DIAGNOSIS.—The diagnosis of acute peritonitis is generally easy. The sharp, lancinating character of the pain, exquisite tenderness on pressure, hard or wiry pulse, and marked constitutional disturbance, will serve to distinguish it from all other affections. In the sub-acute or chronic form of the disease it is more difficult to make a diagnosis; but the tenderness on pressure, sharp, lancinating, or tearing character of the pain, and greater constitutional disturbance than we would expect from the visceral disease, is usually sufficient.

PROGNOSIS.—The prognosis is usually favorable, unless complicated with other severe disease, or the result of injuries, operations, or perforation of the bowel.

POST-MORTEM EXAMINATION.—On examination, we find the serous membrane thickened, its vessels enlarged, and in acute

cases, a rosy blush, or even marked redness. The free surface is roughened, and frequently covered with flakes of coagulable lymph, in some cases with a semi-purulent material, at others showing no evidence of effusion of lymph. If the disease has progressed for some time, more or less organization of the effusion will have taken place in the form of false membrane, or the formation of adhesions between contiguous surfaces. In the sub-acute and chronic form of the affection we may find the same adhesions; or the disease being more asthenic, there is a shreddy material attached to the free surface, or there is more or less of a dirty, semi-purulent collection in the peritoneal cavity.

TREATMENT.—Acute peritonitis may be treated in two or three ways, each being preferable in certain cases. If the disease does not affect the visceral portion, I should commence the treatment with Podophyllin in doses of one grain every three hours, combined with three grains of Extract of Hyoscyamus, and repeat until the bowels were thoroughly evacuated. Then follow with the Compound Powder of Ipecac and Opium in doses of from five to ten grains every two hours, or Opium in grain doses every three hours until the pain is relieved. In some cases it would be advantageous to use the spirit vapor bath with this treatment, continuing it until free perspiration was induced. If there is nausea and inability to retain medicine on the stomach, it is good practice to give a thorough emetic, unless there is something to contraindicate it. The Compound Powder of Lobelia answers a good purpose, and should be given in infusion, so as to produce nausea for one or two hours, and then carried to free emesis. A diaphoretic with Opium may then be administered as before.

In some cases I should commence the treatment with the special sedatives; *R*, Tincture of Aconite, Tincture of Veratrum ãã , ʒss ; Aqua, ʒiv ; *M.*; and give in teaspoonful doses every hour. As soon as the pulse begins to come down, the Aesclepias or other diaphoretic may be used, and Opium or Morphia if desirable, to quiet the pain. Occasionally we find it markedly periodic, the remissions occurring in the morning, in which case, full doses of Quinia should be given during the remission.

As a local application wet cups, followed by hot fomentations of Stramonium, Hops, Lobelia, Boneset, etc., afford

marked relief. The cups should be applied over the entire seat of the pain, thoroughly drawn and scarified, but not reapplied, as we do not desire the loss of blood. In very severe cases, I should follow the cups with a sinapism, and this again with the hot applications. In other cases we will find the cold applications preferable, relieving the pain when the warm fomentations increase it. Again, there are some cases in which we have not facilities for the use of any of the measures named, or we are afraid to trust them with the attendant; in such case we may order a poultice, large enough to cover the entire abdomen, to follow the use of the cups.

Passing beyond the first two or three days, the active measures named will have to be relinquished. Now we would administer a sufficient quantity of the special sedatives to control the pulse, and a diaphoretic, as, *R*, Essl. Tincture of *Asclepias*, 3j; Carbonate of Ammonia, 3j; Simple Syrup, 3ij; *M.*; and give in teaspoonful doses every three hours. If there is tympanitis, we may give with this the Tincture of *Xanthoxylum* or Turpentine, in doses of about twenty drops. A weak solution of Acetate or Citrate of Potassa may be used as a drink, the patient taking two or three drachms in the course of twenty-four hours. The bowels should be kept in a soluble condition by some mild cathartic, as the Compound Powder of Jalap and Senna, or the Podophyllin pill, with *Hyoscyamus*. Very frequently the fever will be found remittent, and in such cases Quinia in full doses will be found advantageous; or if continued, equal parts of Quinia and Hydrastin may be given to the extent of twelve grains of the mixture in the twenty-four hours. Stimulants should be employed in sufficient quantity to keep up the strength of the patient, and Opium to gain comfortable nights.

In the sub-acute and chronic forms of the disease, the treatment will have to be adapted to each particular case, and will depend greatly upon the disease that it is associated with. As a general rule, the irritating plaster will be found to be the best local application, used as heretofore directed. Careful attention to the condition of the skin and kidneys, removing irritation of the stomach and bowels, and promoting digestion, with remedies appropriate to the removal of the associated disease, will be the outlines of treatment.

CHAPTER V.

DISEASES OF THE URINARY APPARATUS.

The secretion of urine is one of the most important of the functions of the human body, as it is through this channel that the greater portion of the nitrogenized waste of the tissues get out of the system. Waste or destruction of tissue is just as important in the animal economy as supply or the nutrition of textures; and we find that the retention of this waste is more serious in its results than the want of material for nutrition. We will find hereafter that the urine contains elements that are poisonous to the human body, and that when retained in the blood in sufficient quantity, they exert the same influence that would follow the absorption of a narcotic poison. Further than this, we have already noticed when considering the pathology of fever, that the nitrogenized material which is converted into urea and uric acid, may undergo such changes by a failure of the kidneys to remove it, as will set up a process of change in living blood, which will finally result in its death.

The urine consists, on an average, of water 1000 parts, solids 20 parts, the specific gravity averaging 1020. The proportion between the fluid and solid portions of the urine varies greatly in different persons, and in the same person at different periods of the day. Thus, a man may to-day void forty ounces of urine of a specific gravity of 1015, and to-morrow but twenty ounces of a specific gravity of 1030; and though the quantity of urine has varied one-half, the amount of solids, or the actual secretion, is the same in both cases. The amount of urine passed in twenty-four hours having been determined, and its average specific gravity ascertained, it is very easy to calculate the amount of solids in it. We are not to suppose, however, that we have determined the amount of secretion as the specific gravity may be changed by the presence of foreign elements in it, as sugar, albumen, mucus, and the salts of lime, potash and soda, etc.

The solids of the urine are composed of *urea, uric acid, fixed*

salts, organic matters, and volatile saline combinations. The amount excreted during the twenty-four hours, in a healthy man, being of urea, 270 grains, uric acid 76 grains, fixed salts 150 grains, organic matters and volatile saline constituents 176 grains, or a total of 603.6 grains.

270

76

150

176

ACUTE NEPHRITIS. 672 grains

Acute inflammation of the kidneys is not of frequent occurrence, as they are situated so deeply, and so well protected, as not to suffer from cold or atmospheric changes, or from injury, and their circulation is so direct and free, that they are not as easily affected by derangements of the general circulation as other parts. When it does occur, it is produced by the usual causes giving rise to inflammation, as cold, injuries, local irritation, the condition of the blood, the sudden arrest of the accustomed discharges, too long retention of urine, the extension of inflammation from the lower parts of the urinary apparatus, etc. Usually but one organ is affected, but in some cases both are involved at one time, rendering the disease very serious.

SYMPTOMS.—Inflammation of the kidney usually commences with a well-marked rigor, though sometimes but slight chilly sensations precede the fever. The febrile action is not high at first, but frequently becomes very intense in the course of two or three days. With the appearance of the chill, the patient complains of a tensive and tearing pain in the loins, which is but little increased by pressure. By the second day this pain has become a marked feature, and now extends down to the hypogastric region, in the course of the ureter, to the testes, causing retraction, and sometimes to the penis. This pain is increased by straining at stool and during micturition. The urine, at first but little changed, is now small in quantity, passed with difficulty, and of a dark-red, or reddish-brown color, and frequently tinged with blood. If both kidneys are affected, the urine will be very scanty and high colored, and passed with difficulty. In a later stage of the disease if the calyces and pelvis of the kidney are affected, we will observe more or less mucus or muco-pus in the urine.

The constitutional disturbance becomes marked by the second day. There is frequently nausea and vomiting,

especially when anything in the slightest degree nauseous or irritant is taken upon the stomach; the bowels are obstinately constipated, and acted on with difficulty; the skin dry and harsh, the pulse hard and frequent, and at first great irritation, restlessness and entire inability to sleep; but if the secretion becomes markedly scant, as from disease of both kidneys, coma or low muttering delirium sooner or later makes its appearance. If but one kidney is involved, we will find if the disease progresses, without being controlled by treatment, that the fever assumes a typhoid or asthenic character by the seventh or tenth day, with dark furred tongue, sordes on the teeth, typhomania, etc. If both kidneys are affected, the disease will terminate fatally before this, if not arrested by medicine.

DIAGNOSIS.—We diagnose acute nephritis by the deep seated pain in the loins, the scanty and high-colored urine, pain passing in the course of the ureter to the hypogastric region and testicles, and the marked constitutional disturbance.

PROGNOSIS.—If but one kidney is involved, the prognosis is favorable: if both, it is doubtful.

POST-MORTEM EXAMINATION.—Dissection reveals the size of the kidney increased, if its entire structure has been involved, if but part, the enlargement will be confined to it. The inflamed part is of a deep-red color before the formation of pus, sometimes brownish and of an ecchymosed appearance. If pus is formed, we will find it mottled with gray, the grayish points not being larger than a pin's head, surrounded by the brownish-red tissue. In some cases there are accumulations of pus, and marked softening of the organ, showing a great depression of vitality.

TREATMENT.—Prompt treatment is necessary in this case, especially if both kidneys are involved in the disease. I should administer immediately a full dose of Compound Powder of Jalap and Senna, and Bi-tartrate of Potassa, in equal parts, and if there were great nausea, I would premise with an emetic. We use the cathartic as a most efficient means of derivation, to lessen the quantity of the circulating fluid, and to remedy in part the influence of defective secretion of urine. The special sedatives should also be employed as heretofore recommended, with the addition of full doses of Gelsemium, which seems to have a direct action upon these organs. I should use it in doses of from one-fourth to half a

teaspoonful every two hours, until its influence upon the system was marked by depression of the eyelids and distorted vision. The Essl. Tincture of *Asclepias*, Diaphoretic Powder, or other diaphoretic, may be used in combination with it.

To aid the action of these remedies we will find it advantageous to use the hot sitz bath, or, as I have sometimes done, sit the patient in a tub of hot water, put his feet in a bucket of hot Mustard water, with a blanket drawn closely around the whole. Previous to this, it is well enough to apply three or four cups to the region of the kidneys, well drawn and scarified, and especially is this the case if both kidneys are involved. The patient being placed in bed after the bath, hot fomentations may be assiduously applied until relief is obtained. In some rare cases, we might find the wet bandage useful, but as a general rule the hot applications are best.

Until the acuteness of the symptoms has passed off in some measure, no diuretic is admissable; but as soon as the bowels are freely opened, and the skin is slightly softened, they may be used. The remedies should be very mild and unirritating, as an infusion of *Althæ*, *Verbascum*, *Apium*, *Galium*, *Polytrichum*, etc. As soon as the secretion becomes free, we can change these for the tonic diuretics, as the *Hydrangea*, *Agri-monia*, *Collinsonia*, *Uva Ursi*, etc. If there should be hemorrhage from the urinary apparatus, Gallic Acid may be given with the greatest confidence.

As the disease progresses, we obviate to some extent the bad effects of retained urine by keeping the bowels open, and the secretion from the skin free by the use of warm baths, and the internal administration of diaphoretics. Hydrochlorate of Ammonia, with Chlorate of Potassa, are favorite remedies with me to counteract the influence of uræa upon the system. Quinia may be used with advantage to control febrile action, after the secretion of urine has become tolerably free, but previous to this it is rather injurious than otherwise. Opium may be used in cases where there is no evidence of uræmia, but must be sedulously avoided if there is. Alcoholic stimulants are always objectionable.

CHRONIC NEPHRITIS.

Chronic inflammation of the kidneys is one of the most insidious of diseases, and in this lies its danger. It is caused

by colds, injuries, strains, irritating diuretics administered for other diseases, and the extension of inflammation from the urinary organs below. It is most frequently confined to one kidney, though it sometimes attacks both.

SYMPTOMS.—In sub-acute cases the patient has a marked sensation of soreness in the region of the kidney, with slight soreness on deep pressure; the pain passes in the course of the ureter, giving rise to more or less irritation of the bladder, retraction of the testicle, and in some cases pain in the hips. The urine is scanty, and of a dusky-red or brownish color, and causes more or less irritation in its passage. The bowels are constipated; the tongue dry, slightly coated with white, and fissured; the appetite is poor; the skin dry and harsh; there is loss of flesh and strength, with dullness and hebetude during the day, and restlessness at night. Occasionally there is an obscure pain in the after part of the day, or in some cases it is a marked remittent, there being some fever all the time. These symptoms may continue for weeks, the patient becoming more and more prostrate, and finally, suppuration ensuing, we have a low form of ataxic fever, which terminates the life of the patient in a few days.

Chronic inflammation of the kidney is not so well marked at first. There is usually an unpleasant sensation of weight, with occasional soreness in the loins, worse on some days than on others, and increased on active exertion. The urine may or may not be scanty at first, but becomes so as the disease progresses, is usually high colored, and produces more or less irritation when passed, usually as a burning sensation along the urethra. The testicles are sometimes retracted, at others pendulous; but frequently the patient has recurring pains in them or in the penis. In many cases we will find the patient complaining of weakness of the back, in the lumbar and lower dorsal region; sometimes pain with tenderness on pressure. The bowels are obstinately constipated in a majority of cases, and there is occasional nausea and vomiting. The mouth is dry and parched, the tongue hard, harsh, slightly coated, white and more or less deeply fissured; if there is any one symptom pathognomonic of the disease it is this dry and fissured condition of the tongue.

These symptoms continuing, the patient gradually loses flesh and strength, though not confined to the bed. He may also, at two or three different times, have exacerbations, the

inflammation assuming a sub-acute form, but yielding readily to the use of appropriate means. In this way weeks, or even months, pass, the patient, though constantly failing, lives in hopes of speedy recovery. Finally, acute pain occurs in the region of the kidneys, and extends down to the lower portion of the urinary apparatus; the urine is very scant, and contains pus and blood; the nausea is constant and vomiting frequent, the pulse feeble, wiry and very frequent, and a marked and alarming torpor of the nervous system, which passes rapidly into deep coma, and the patient dies the second or third day of the attack, and sometimes within the first twenty-four hours.

DIAGNOSIS.—We diagnose chronic inflammation of the kidneys by the locality of the pain, its extension to the hypogastric region, and the testicles; by the weakness of the back, the derangement of the urinary secretion and the unpleasant sensations on passing water; by the attendant dryness of the skin, and obstinate constipation of the bowels; by the loss of flesh and strength, and the inefficiency of tonics and stimulants to increase it; and lastly by the serious disturbance of the nervous system, and the peculiar and marked appearance of the tongue.

PROGNOSIS.—If recognized in an early stage the treatment is very successful; but if postponed until marked structural change takes place, or the vitality of the system is much impaired, the prognosis is doubtful. In the final attack but very little hope of relief should be held out.

POST-MORTEM EXAMINATION.—The changes discovered in the kidneys after death are of the most opposite characters. Sometimes the organ is atrophied, and seems shrunk and shriveled; the structure appears to be greatly lacking in blood, and the internal structures indurated, and of a mottled appearance. In other cases the organ is markedly increased in size, the surface rugose, and the internal structure dark, and much softened. Occasionally there is deposit of purulent material throughout the kidney, but more frequently we find the mucous membrane of the pelvis and calyces thickened and covered with a muco-purulent secretion.

TREATMENT.—In the treatment of chronic nephritis we must be satisfied with slow amendment, as it is not possible for the disordered condition of the system to be removed at once. The principal point in the treatment is to restore the secretions

of the bowels and skin, and thus relieve the inflamed kidneys, and the oppression of the system from retained urea. To correct the constipation of the bowels is a work of difficulty. I prescribe in some cases an infusion of *Leptandra Virginica* in doses sufficient to produce two evacuations daily; again, we may use, \mathcal{R} , Sulphur Subl., 3ij; Phosphate of Soda, 3ss; Podophyllin, gr. v; Extract of *Hyoseyamus*, 3ss; make ten powders, or form into an electuary with Honey or Simple Syrup, or into lozenges as heretofore directed; or a pill, composed of, \mathcal{R} , Podophyllin, Extract of *Leptandra*, Aloes, *Hydrastin*, Extract of *Hyoseyamus*, āā, 3j; Extract of *Nux Vomica*, gr. v; \mathcal{M} .; make three grain pills, the dose being one, morning, noon and night. These are the proportions I usually employ, but they can be varied to suit the indications of the case.

If there is nausea and vomiting when first called, I commence the treatment with a thorough emetic; and if the necessity seems imminent, evacuate the bowels with the Compound Powder of Jalap and Senna and Bi-tartrate of Potassa; following this, I direct, \mathcal{R} , Tincture of Aconite, Tincture of *Veratrum*, āā, gtt. x; Essl. Tincture of *Asclepias*, 3j; Water, 3iij; in doses of a teaspoonful every hour until it produces an impression on the system, and afterwards every two, three or four hours. This should be assisted by an appropriate bath, sometimes alkaline, at others stimulant or tonic, and warm or cold, as appears best suited to the patient. It should be used as often as it seems of benefit, and with the friction of a coarse towel or flesh-brush.

Among the remedies directed to the kidneys we will find an infusion of the Hair-cap Moss about the best, where there is much irritation; or the *Apium* or *Verbascum* may be substituted in some cases. We follow these, as the irritation subsides, with the *Agrimonia*, *Hydrangea*, *Collinsonia*, *Uva Ursi*, *Buchu*, etc. If there is considerable mucus secretion, which continues after the severer symptoms have passed off, we may try the *Copaiba*, Turpentine, or even the Tincture of *Cantharides*, in small doses. The Bromide of Potassa, with Santonine, equal parts, in doses of four grains four or five times a day, is useful. The Tincture of Muriate of Iron may also be used in doses of from ten to thirty drops three or four times a day. As an external application I prefer the irritating plaster, applied over the diseased part, to all other local applications, though if the patient should object to it, we might sub-

stitute dry cupping or the application of Croton Oil. The pulverized Podophyllin, moistened with warm water, and applied once or twice a day for an hour, will sometimes answer a good purpose, as will also the Vinegar bandage used continuously.

Tonics and stimulants are not admissible in the early part of the treatment, in fact they are injurious until secretion is fully established from the kidneys; then they may be given as in other forms of chronic disease. I am satisfied much injury has resulted from their improper use in these cases. The alkaline diuretics are also excluded at this time, as they are very apt to excite such an irritation of the kidneys as will still further arrest secretion instead of increasing it.

GRANULAR DISEASE OF THE KIDNEY.

Bright's disease, or albuminuria, may occur at any period of life, though of more frequent occurrence about middle age. If it appears in the young, it is most generally the result of the eruptive fevers, particularly scarlatina. It may arise from any cause that will induce congestion of the kidney and continue it for a considerable time, as the first appearance of albumen in the urine may be regarded as an effort of the kidney to relieve itself of congestion. This diseased function gives rise to structural change, which unfits the organs for eliminating the normal nitrogenized secretion, and the last evidence of its secreting power is found in the separation of water and albumen from the blood. The disease may be either acute or chronic, the last being by far the most frequent.

SYMPTOMS OF ACUTE ALBUMINARIA.—Occurring almost always after the eruptive fevers, or exposure to cold by which the surface is suddenly chilled; it commences generally with a well-defined chill, symptomatic fever follows, the pulse being hard and frequent, the skin hot, dry and constricted, the tongue coated white, the mouth dry, frequently nausea and vomiting, bowels constipated, pain in the back, and marked restlessness and nervous irritation. With these symptoms the patient complains of a sense of weight and constriction in the region of the kidneys, never as is said, extending to or causing retraction of the testicles. The pain may be confined

to one side, but one kidney being affected, or it may be equally in both sides.

With the occurrence of these symptoms the urine becomes scant, almost suppressed, and highly albuminous, of a reddish color, and occasionally bloody. Its specific gravity is almost always above that of healthy urine, and it gives an acid reaction. When allowed to rest, it deposits a filamentous substance, and when examined with the microscope it will present blood-globules, mucus, epithelium, and in some cases, complete casts of the urinary tubules. A dirty-white sediment is frequently deposited from the urine, not unlike mucus, and easily diffused by agitation. The urine is frequently passed with difficulty, and sometimes with pain, the calls to urinate being frequent and distressing.

In the course of the second or third day dropsical symptoms make their appearance, most frequently as anasarca of the eyelids, face, and at last of the whole body. The skin at this time is hot, and does not pit except upon firm pressure. If properly treated, in a majority of cases, we find that the symptoms are much mitigated in the first three or four days, and the disease terminates in recovery by the twelfth to the fifteenth day. In other cases, coma comes on by the second, third or fourth day, and the disease terminates fatally within the first week. Occasionally convulsions appear, and continue until the patient is exhausted. In other cases the disease seems to give way slowly until it reaches the chronic stage, in which it continues.

SYMPTOMS OF CHRONIC ALBUMINURIA.—There are no marked symptoms in the early stage of the disease to arrest the attention of the patient or the physician. It is noticed that the patient is gradually losing flesh and strength, and has a cachectic appearance. The skin is dry and somewhat harsh, and the patient does not perspire on active exertion as usual. The bowels are constipated, or in some cases irregular, diarrhoea alternating with constipation; the appetite is variable, and there are more or less dyspeptic symptoms and headache. These symptoms and loss of strength at last becoming so marked, cause the patient to consult a physician, it may be months, or sometimes two or three years from the commencement of the indisposition. On close questioning, we will find that the patient has a weakness of the back, probably a sense of fullness in the loins, and his attention has been drawn to

slight difficulty in passing urine, and some alterations in its physical properties. In all such cases the careful physician will institute an examination to determine whether it is normal or not, and the character of its constituents.

We determine the presence of albumen by the fact that it coagulates on the application of heat, and the addition of a small quantity of nitric acid, and though other material might be thrown down by heat or acid, yet none other by both. If we desire to be accurate, a small portion of urine should be placed in a small test-tube and heated over a spirit lamp; but if this is not convenient, a common iron spoon may be filled half-full, and heated over a common lamp or candle. Dr. Bird recommends that the extreme end of the bowl be placed over the flame, and in this way the thin layer of urine near the end of the spoon soon boils, and the white striæ of this coagulated albumen gradually diffuses itself through the cooler liquid; in this way we can detect a very small quantity of this substance. The addition of a drop of nitric acid to albuminous urine immediately produces a copious coagulation of albumen. If but a small quantity is present, the opacity will disappear on agitation, but may be reproduced by the addition of a second drop. Both these tests should be employed, for as before remarked we may be deceived by one, but can not very easily with the two.

As the disease progresses the patient becomes very feeble and cachectic, and frequently dropsical. The appetite is poor, digestion is feeble, the circulation weak, there is great emaciation, hectic fever appears in the evening, followed by night sweats, the patient dying of gradual marasmus, or some other affection that is set up owing to the enfeebled condition of the system; or uræmia occurs, and carries the patient off in a very short time. Occasionally, in the later stages the urine is scanty and but slightly albuminous, so that there is some difficulty in determining the cause of the constitutional disturbance.

DIAGNOSIS.—In the acute form of the disease, the symptoms usually point more or less directly to the kidneys as the seat of the disease, but in the chronic form there may have been nothing to direct the patient's attention to it. In all cases of marked debility or cachexia, if we wish to determine the cause, we make our diagnosis by exclusion; in this way we finally arrive at the truth. But in addition, in this case, we would gain the desired end easier, because this is one of the

most important functions, and one that we are always anxious about. Having our attention directed to the kidneys as the seat of disease, an examination of the urine as heretofore named will at once determine the cause of the difficulty with great positiveness.

PROGNOSIS.—In the early stage of Bright's disease the affection is amenable to treatment, as are also many cases where the disease has progressed for some time; but, at a later period, little can be done. We may determine principally by the extent of the impairment of the functions of digestion and assimilation.

POST-MORTEM EXAMINATION.—In the early stage of Bright's disease, the kidneys are found enlarged, their consistence greater and of a deeper color than usual. On dividing the kidney, the cortical substance is observed to be tumefied, and to such an extent as to press upon the malphigian pyramid. The malphigian corpuscles are injected, and there is more or less albuminous deposit and commencing granulation. Where the disease is fully developed the kidney when divided from its convex to its concave side, presents a pale yellow surface mottled with white as the cortical substance, which is very markedly contrasted with the red of the tubular structure. The cortical substance is enlarged, and seems to occupy more room than in health, especially in its prolongations between the pyramids. If the incisions are carefully made, the cortical substance seems to consist in considerable part of minute granulations, these being the changed malphigian glands enlarged by albuminous infiltration. In some rare cases the kidneys are reduced in size, and seem to be hard and nodule, though in these cases the granulations are not so distinct.

TREATMENT.—In the acute form of the disease we will adopt a treatment in some respects similar to that for acute nephritis. At the commencement a brisk cathartic of Compound Powder of Jalap and Bi-tartrate of Potassa, equal parts, should be given, and repeated as often as necessary. Cups to the loins followed by hot fomentations, are decidedly the best means of counter-irritation, and should be used effectually. The warm or vapor bath will be found very useful, and may be repeated as often as necessary. The bath should be as warm as the patient can bear it, and prolonged for one or two hours. When the conveniences for an entire bath can not be

had, a most excellent substitute will be found in a large wash-tub of hot water, the patient sitting in it, and being closely surrounded by blankets. Diaphoretics should be freely administered at the same time, and their use continued after the bath, the patient being covered warmly in bed, with a bottle of hot water to his feet. Diaphoretic infusions seem to answer a better purpose than other preparations, and almost any agent of this class will be found useful.

The objects of treatment, as will be seen, are to remove congestion of the kidney, and stimulate secretion from the skin and bowels, and thus relieve the enfeebled organs. The measures are active at the commencement, but should be changed for such as will maintain a moderate influence as the disease progresses. The more acute symptoms having disappeared, and wishing to get rid of dropsical effusion, we may use diuretics with moderation; and should any symptom of irritation arise, they must be immediately discontinued. I like the action of Tannic and Gallic Acids in some of these cases. I give the first in doses of twenty grains four or five times a day in Glycerin or made into a pill, and the last in doses of ten grains every four hours. In cases of dropsy arising from acute albuminuria, I have seen marked benefit from these remedies when all others had failed.

In the chronic form of the disease the same attention must be paid to the secretions. The warm bath is useful, and must be associated with the wearing of flannel and the external use of stimulants to prevent exhaustion of the skin. While it is necessary to have the bowels open, we should be extremely careful that they are not acted on to such an extent as to produce exhaustion, or that an irritation of the intestinal mucous membrane is not excited that will prevent proper digestion. Counter-irritation is very important, and may be produced with the irritating plaster, or by the use of cups to the loins. It is recommended that the diet should contain neither fat, butter, or any of those non-azotized substances nearly allied to it, as starch, sugar, potatoes, etc.

As regards remedies directed to the kidneys, we may employ those which increase their tone and give normal stimulation, as, the *Collinsonia*, *Agrimonia*, *Hydrangea*, *Eupatorium*, *Purpureum*, or if there is dropsy, the *Aralia* *Hispida*. In some cases the Tincture of *Cantharides* may be associated with these with advantage, the doses being from six to twelve

drops, from thirty to sixty drops being taken during the twenty-four hours. The Tincture of Muriate of Iron has been associated with the Cantharides in some cases, as has also the Syrup of Iodide of Iron, and the Iodide of Potassa.

The dropsy may be treated with hydragogue cathartics, as the Compound Powder of Jalap and Bi-tartrate of Potassa, or in some cases the Elaterium may be used in place of the Jalap. Much care must be used to prevent irritation, and if it appears the medicines must be stopped. Digitalis with the Aralia, Eupatorium Purpureum, Hair-cap Moss, or Horse-radish, in infusion, is sometimes useful as a diuretic. But as before remarked, I have obtained better results from the use of Tannic and Gallic Acids, than from any other remedies.

HEMATURIA.

Hemorrhage from the kidneys may result from injuries, especially falls or blows upon the loins, from inflammation, and from the presence of calculus in the kidney. It is very generally attended with a sense of fullness in the region of these organs, and sometimes a dull, heavy aching pain. In almost all cases we find a disposition to urinate very frequently, and more or less trouble and pain in its passage. Sometimes the suffering from this cause is extreme, especially if the hemorrhage is the result of injury. Usually there is also very great prostration if an injury should be sufficient to cause bloody urine.

A *passive renal hemorrhage* sometimes precedes Bright's disease, and according to Dr. Crooke, is marked by the following symptoms: "A pallid complexion, of a dirty-white or muddy color; with dilated pupils; occasional headache and ringing in the ears; the tongue is large, flabby and furred, the edges thereof indented by the teeth; the bowels are open and loose; there is much flatulence and nausea, with irregular appetite; palpitation is frequent; the surface of the body is cool; the skin soft and relaxed, but dry; the pulse full, soft and bounding, or small and soft, putting on the former condition on change of posture; there is gradual but progressive emaciation; irritability and gloominess of temper, with great disinclination to exertion, either bodily or mental." The local symptoms are usually a sense of weight and fullness in the

loins, with a dull, obscure pain, sometimes referable to the penis, testicle, hip, inside of the thighs or perineum.

DIAGNOSIS.—In hemorrhage, the result of injury, as well as in some cases of acute hemorrhage from other causes, the presence of blood will be very distinct, in fact, in some cases, very little but blood seems to be passed. According to Dr. Bird, "When blood is effused in any considerable quantity in the urine, it coagulates into masses like black currant jelly; and when it partly coagulates in the bladder, linear masses of clot of nearly the shape of leeches, are passed from the urethra, often to the great distress of the patient, by producing temporary suppression of the urine. Even after this coagulation, the urine retains a port wine color, and the microscope detects an abundance of entire blood corpuscles; although in a great proportion of them the investing membranes have given way, and the colored contents become diffused through the urine. If too small a quantity of blood has been effused to give a decided red color to the urine, it will be frequently found possessing merely a dirty, dingy hue; less frequently being of a pink color, like the washings of flesh."

TREATMENT.—In acute hematuria the patient should maintain the recumbent position, and keep as quiet as possible. The cold, wet bandage may be applied around the abdomen, the patient being covered warmly with blankets, and a bottle of hot water placed at the feet. If there is excitation of the pulse, as there generally is in these cases when not the result of injury, I should administer Tincture of Veratrum and Digitalis, until its influence was marked. Associated with this, Gallie Acid should be given in doses of five grains every hour or two, or if the hemorrhage is severe, every fifteen or thirty minutes. No agent has had such a marked effect in my practice.

In hemorrhage from injury it is essential many times that vigorous means be used to overcome prostration and determine the blood to the surface and extremities. For this purpose we may substitute stimulant applications for the wet bandage, and apply cloths wrung out of hot Mustard water to the lower extremities. Brandy may be given in moderate quantities if it seems necessary, and small doses of Carbonate of Ammonia. To arrest the hemorrhage, give Gallie Acid in doses of five grains frequently repeated, associated with from three to ten drops of Oil of Erigeron.

In passive hemorrhage I should direct the free use of dry cups over the entire lumbar region, followed by a poultice of a decoction of equal parts of Podophyllum and Cornus, with Wheat-bran. The warm bath may be used once or twice daily with marked advantage, but further than this the patient should be kept quiet in bed. If there is nausea with irritation of the stomach, the infusion of Peach-tree bark, before mentioned, will be found an admirable remedy; and in addition we may use Creosote in doses of one drop, made into a pill with two grains of Rhubarb, and half a grain of Hydrastin. Gallic Acid is one of our most efficient remedies in arresting hemorrhage, given in doses of five grains every two, three or four hours. Oil of Erigeron seems to answer a good purpose, but in many cases causes irritation of the stomach; Turpentine has been used with success in these cases, in doses of from ten to thirty drops. When much irritation of the urinary passages exists, we may use Santonin in small doses, triturated with white Sugar, or if confined principally to the bladder and urethra an Opium injection or suppository will be of advantage.

DIABETES.

By diabetes we understand a condition in which there is an excess of urine passed. The forms recognized by most writers are, diabetes insipidus and diabetes mellitus; the first being simply excessive in quantity, but without change in its constituents, though of low specific gravity; while the last is not only excessive in quantity but contains an abnormal constituent—grape sugar. The causes of both forms of diabetes are very obscure, as is also the pathology of the affection. The first form is doubtless induced by any cause that would induce long-continued excitation of the organs, resulting in an enfeebled and sluggish circulation. The second is no doubt partially a disease of digestion, of assimilation, and of the liver and lungs.

SYMPTOMS.—*Diabetes insipidus* may come on slowly and gradually, or its advent may be sudden. The patient's attention is directed first to the increased frequency of the calls to micturate, and especially by having to get up at night to relieve the bladder; then that the urine is passed in large quantities at a time, and that it is very clear. At the same

time he feels a sense of lassitude and languor, with pain in the back, and considerable thirst; the appetite is somewhat impaired, digestion imperfect, the skin soft and doughy, or dry and constricted. These symptoms may make their appearance so as to be marked in a couple of weeks, or they may be months in their development. Continuing, it may result in diabetes mellitus, or by enfeebling the system predispose to severe cachectic affection.

Diabetes mellitus may come on slowly or rapidly. In some cases months will have passed before the patient thinks his condition so serious as to demand the assistance of a physician; but in a majority, from four to eight weeks is sufficient for the full development of the affection. It comes on insidiously, without a pain or an ache; or any symptom that could be called disagreeable. The patient notices that he is losing flesh and strength every day, and is becoming so feeble that it is with difficulty that he is able to attend to his business, and at the same time that he eats nearly as much as usual. His attention is called to the frequent calls to pass water, and especially that he has to rise during the night, and that the amount in the vessel in the morning is very large. These symptoms continue to increase until the patient becomes very feeble and thin in flesh, and is scarcely able to get about, being confined to the room the greater portion of the time, and still there is no suffering. The thirst is usually a very marked symptom, the patient having an almost constant desire for, and drinking large quantities of fluids.

As the disease progresses toward a fatal termination, we observe hectic fever in the afternoon, with night-sweats. The thirst still continues and is frequently intense; but the appetite is much impaired and capricious. Sometimes phthisis sets in and runs its course rapidly; at others the patient is seized with a colliquative diarrhœa; and in others the kidneys fail to remove the necessary amount of urea, and the patient dies of uræmic coma.

Bernard has proven conclusively that sugar is a normal secretion of the liver, and that by irritating the eighth pair of nerves at their origin in the fourth ventricle he could markedly increase its quantity. That it does not exist in the general circulation in a state of health, though constantly secreted, is explained by its rapid decomposition and excretion from the lungs. But if secreted in large quantity, and in a

condition in which the lungs do not act with normal power, it would then remain in the blood, but being foreign to it would be excreted by the kidneys, giving rise to diabetes. We may then conclude that diabetes is dependent upon increased hepatic action, at least so far as the formation of sugar is concerned, and deficient pulmonary action. This last is borne out by the fact that diabetic patients usually die phthisical. I have no doubt that there is also some derangement of the blood, probably dating back to the digestive process, as the secretion of the liver, according to Bernard is not sugar, but a substance similar to starch, and which requires a peculiar ferment to produce the transformation.

DIAGNOSIS.—Diabetes is known to exist, by the large quantity of water passed daily, and by the symptoms of emaciation and debility which attend it. To determine whether it is diabetes insipidus or mellitus, an examination of the urine must be made. The urine will usually be found of high specific gravity, 1030 to, sometimes, 1040, though occasionally it may not exceed 1020, and may sink to 1010. Barns's test is the one most frequently resorted to, to determine the presence of sugar: "Place in a test-tube about two drachms of the suspected urine, and add nearly half its bulk of liquor Potassæ. Heat the whole over a spirit lamp, and allow active ebullition to continue for a minute or two; the previously pale urine will become of an orange-brown, or even bistre tint, according to the proportion of sugar present. The subsequent addition of an acid generally causes the evolution of an odor of boiling molasses." The only source of error in this test is, that the solution of Potassa employed may contain lead, in which case, uniting with the sulphur of the urine, it would give rise to very similar change of color; hence the solution should be known to be pure, and kept in green glass bottles free from lead. A very simple method of treating urine is to put a small portion in a bright iron spoon, and evaporate it over a spirit lamp; if sugar is present, it will give the iron a peculiar reddish-brown hue, and sometimes the smell of carmel will be very apparent. If allowed to stand in a warm place a scum forms upon the surface, looking as if flour had been dusted upon it; if this is examined with a microscope it will be found to consist of a jointed confervoid growths and smaller cells; this is the *torula cerevisiæ*. Another fact worthy of notice is, that saccharine urine never

possesses the putrid smell of the decomposing urine of health, no matter how long it may stand; this is accounted for on the supposition that alcohol is generated by the fermentation of the saccharine matter.

PROGNOSIS.—The prognosis in diabetes insipidus is very favorable, but in diabetes mellitus it should be very guarded. There is no doubt in my mind that a majority of patients will die of the disease; some will recover perfectly.

POST-MORTEM EXAMINATION.—In many cases, no pathological lesions exist that would give the slight assistance in forming an opinion of the pathology of the disease; in fact, no lesion is found constantly, as in some other forms of disease. The kidneys have been found smaller than usual, and increased in size, of greater or less density, of darker color and blanched, but in a majority of cases very nearly natural, with a slightly increased turgescence and enlargement of the blood vessels. The liver has more frequently been found diseased, if we are to believe writers on this subject, but some have been unable to determine any change. The lungs usually suffer to some extent in the latter stages of the disease, but the lesions are those of phthisis or a low form of inflammation, and have no relation to the diabetes further than they are induced by the debility produced by that disease.

TREATMENT.—The treatment of diabetes is not as successful as might be desired, and is almost entirely empirical. It is claimed by most writers that a diet almost exclusively animal, so as to avoid to as great an extent as possible the material for the formation of sugar, is indispensable. While satisfied that this is good treatment, I doubt very much the correctness of the reasoning. I am of the opinion that the stronger the diet the better the patient gets along, and am thus in the habit of giving the patient freely of ale, porter or beer, and a diet of eggs, beef, mutton-chop or game, with milk and bread and butter. If the appetite is impaired, and evidence of want of tone of the alimentary canal. I use a tonic combination as follows: *R*, Quinia Sulphas, gr. xxx; Hydrastin, gr. xx; Extract of Nux Vomica, gr. ij; Extract of Xanthoxylum, gr. x; Sulphuric Acid, q. s.; *M.*, and make twenty pills, of which the patient may take one four times a day. As a continuous tonic and stimulant, I like the action of Collinsonia, given in the form of tincture, combined with Simple Syrup. The only

two cases I ever cured had in addition to these means, one drachm of Gallie Acid daily.

I like the theory of Dr. Inman, and, to some extent, the practice; he was guided by the following considerations: "1. The liver naturally produces sugar in a definite quantity. In diabetes there is an excess of sugar, and we may fairly infer that it comes from the liver. Opium has a decided effect in diminishing the bile-producing or secreting function of the liver, and it is reasonable to suppose that it will reduce the sugar-forming formation. Experience has long told us that no single remedy in diabetes has been so efficacious in diminishing the quantity, etc., of urine passed, as Opium. Opium, therefore, should be an ingredient of the treatment. 2. Again, Bernard has shown that the liver makes sugar, no matter what is the nature of the food employed. Dr. Budd has shown that some patients at least, may be benefited by saccharine food. But my patients did not long for sugar; and they did not enjoy their ordinary food; consequently I neither restricted them to non-saccharine or non-amylaceous diet, or prescribe unusual quantities of sugar. They were to have the ordinary full diet of the hospital, but more in quantity if they chose, either of bread, meat or potatoes. 3. Again, it seems to be clear, that in diabetes, there was debility implicating more or less the whole system: that there was danger of death by consumption; that the digestive powers, notwithstanding their apparent energy, must be impaired; at any rate that Opium was liable to disorder the stomach, and that it could be tolerated in larger quantity, if combined with Quinia. The result of these convictions was the following prescription for a pill: Opium, 3j; Quinia, 3ij; to be taken every four hours. Full house diet, with Porter daily."

A great many remedies have been recommended in diabetes, the more noted of which may be named. The Tincture of Cantharides has been pretty extensively employed in this country; it should be commenced in doses of ten drops every three hours in muelage, and may be gradually increased up to thirty drops. Ammonia has been strongly recommended; Dr. Barlow gave the Sesqui-carbonate in doses of five grains every three hours; M. Bouchardat, a mixture of Carbonate of Ammonia, 77 grains; Rum, 310 grains; Water, 1,550 grains; one-third to be taken half an hour before each meal; Liquor Ammonia has been recommended by several; Dr. Colles gave

a mixture of this and Lime-water. The Permanganate of Potassa has been employed, and it is observed with good results, as has also the Sub-acetate of Lead. All of the astringent diuretics have been used, and each has been lauded as a curative; but without any just ground; in fact, I am inclined to believe that they are more frequently hurtful than otherwise. Remedies that act on the liver, as the Sanguinaria, have been recommended and employed to considerable extent, but so far as I can learn, without advantage.

Dry cupping to the spine, with the use of a salt sponge bath and brisk friction, are very important elements of the treatment. The patient should wear soft flannel next to the skin, and keep the extremities dry and warm. Exercise should be taken in the open air to as great an extent as possible short of fatigue, and the sleeping room well aired and sunned if possible.

Diabetes insipidus is usually arrested very readily by getting a free action of the bowels and skin, and checking the urinary secretion by the administration of Gallie Acid and Opium. Sometimes the astringent diuretics may be used with advantage, as the Uva Ursi, Buchu, Chinaphila, etc., or the use of Turpentine, Tincture of Cantharides, or Creosote. In some cases I have seen most marked effects from a combination of \mathcal{R} , Podophyllin, Morphia Sulphas, āā , gr. v; Saccharum Album, 3j; M., triturate thoroughly, and divide into twenty powders, of which one might be taken every four hours; one grain of Hydrastin may be added to each dose, if the patient needs a tonic, or if the appetite is poor, or the digestion feeble.

ISCHURIA.

Arrested discharge of the urine is rather a symptom than a disease, and may occur in various conditions of the system, and from various causes. It may be divided into two forms: *ischuria renalis* or arrest of the secretion, and *ischuria vesicalis* or retention of urine.

Suppression of urine may be caused, as we have already seen, by inflammation of the kidneys or from chronic structural disease, or from the presence of a calculus in the pelvis of the kidney or ureter, or from sudden congestion of the kidney from cold or shock to the system, or from exhaustion or enfeebled nervous action during many acute diseases. It is

usually only partial, as the lesion would have to be very severe that would cause a total suppression.

The *symptoms* of suppression vary greatly according to the cause and the condition of the system. If from inflammation, we will have had the marked evidences of that disease previously, and so in the case of chronic structural disease. If from renal calculus there will usually have been previous symptoms of diseased kidney, and the arrest will frequently be attended with sharp pains in the kidney and back, with chills, prostration and febrile action. If from sudden congestion or shock, there will have been no previous symptoms, or may be a sense of weight and oppression in the lumbar region, with disposition to void urine, but inability to do so. If during acute disease, the first evidence will be manifestation of symptoms of uræmic poisoning. In all these cases, we will notice a gradually increasing stupor, with disordered innervation. In some cases, there will be partial or complete convulsions, in others pain in the back, and wandering pains throughout the body, the patient being uneasy and restless; and in others an intense pain or feeling of constriction in the head. Nausea and vomiting frequently occur, and the irritability of the stomach seems in some cases to be a leading feature of the disease. As time passes, we find the coma becoming deeper, until at last it is impossible to arouse the patient, the pulse is feeble and irregular, the extremities cold, the countenance hypocritic, and more or less convulsive movement until death ensues.

Retention of urine may occur from paralysis of the bladder, or from irritation of its neck or the urethra, or from the pressure of adjacent organs, or the presence of a calculus. Retention from paralysis is of quite frequent occurrence in typhoid and other low forms of fever and inflammation, and is one of the features of those diseases that the physician will have to be on the constant lookout for. In this case it will be noticed that the prostration is much greater, and the symptoms are more grave than were anticipated, and frequently there is more or less coma. On inquiry, it will be found that the urine has not been passed lately, and on examination the bladder will be found distended. Sometimes the attention is drawn to it when the retention is but partial by the disposition the patient manifests to keep his hand upon the lower part of the bowels, or clutching at something at that point. The

bladder may be paralyzed by too long retention of the urine, as in urethritis, or in affections of the adjacent pelvic viscera, in which micturition is painful. In these cases the patient feels an undue distension, sometimes amounting to pain, and on attempting to pass water, finds that he has no control over it. Now the patient's suffering becomes intense. He has a constant desire to micturate, and is frequently attempting it, the effort being attended with pain and feeling of great distension, as if the bladder would rupture, which sensation is constant. If the result of irritation of the neck of the bladder or urethritis, the patient has, in addition to the feeling of distension described above, a severe, scalding pain, with more or less sharp, lancinating pains in the perineum and anus, and sometimes in the small of the back. The symptoms of retention from presence of a diseased or misplaced uterus, or from disease or impaction of the rectum, or enlarged prostate, are very similar. If the retention is produced by a calculus, it comes on during an attempt to micturate, the flow of urine being suddenly stopped; now the patient experiences a constant tenesmus and desire to evacuate the bladder, with exquisite, tearing, burning and lancinating pains at the neck; these pass off in a short time, but continually recur until the difficulty is overcome.

DIAGNOSIS.—It is not difficult to determine that ischuria exists, but sometimes troublesome to determine whether it is suppression or retention. Suppression of urine is very frequently attended with unpleasant sensations in the region of the kidneys, there is stupor, deranged innervation and coma; and if further evidence is wanting, the passage of the catheter elicits the fact that there is no urine in the bladder. Retention of urine is characterized by a feeling of fullness and distension of the bladder, and with tenesmus and desire to evacuate it, but inability to do so. Of course, in low forms of febrile and inflammatory diseases, the only means of determining is by abdominal palpation and the use of the catheter.

PROGNOSIS.—The prognosis is unfavorable in cases of suppression of urine, if it is anything like complete, as uræmic poisoning progresses rapidly. If there is still some secretion, and in proportion to its arrest and the already depressed condition of the system, the prognosis will be favorable. In retention of urine we can nearly always give a favorable prog-

nosis, as even when it results from an impermeable stricture, a false opening is practicable.

TREATMENT.—In inflammation of the kidneys with suppression, most active means will have to be employed to relieve the kidneys, both being involved. Cups, with scarification to the entire lumbar region, followed by the hot bath, or sitting the patient in a large tub of hot water with the feet in Mustard water, and closely covered in with a blanket, should be immediately resorted to. The water should be kept as hot as the patient can bear it by the frequent addition of hot water, and it should be continued for hours, or until the urine commenced to pass. A brisk hydragogue cathartic, as equal parts of the Compound Powder of Jalap and Bi-tartrate of Potassa, should be administered at once, and repeated if necessary. Some warm diaphoretic infusion should be administered freely combined with a mucilaginous drink, as the *Asclepias* with *Althæa*, the *Eupatorium* with Hair-cap Moss, etc. As soon as the bowels are acted on, I should administer a combination of equal parts of the Tinctures of *Gelseminum* and *Maerotys*, in doses of thirty drops every hour, until the full influence of the remedies are obtained. If any remedies will lessen the inflammation and cause secretion, these will do it.

In chronic structural disease of the kidneys suppression is almost invariably fatal. We will have had several days' notice, in a majority of cases, the urine becoming less and less; and during this time the appropriate means will have been used, so that when the symptoms of uræmic poisoning occur we have no remedies to combat it. In these cases it is important to keep up free action of the bowels and skin, and by these means life may frequently be prolonged for a considerable time. In cases of sudden congestion from shock or cold we would employ cups to the loins, the hot, stimulating hip and foot bath, the administration of a brisk hydragogue cathartic, followed, as soon as their effects had been produced, by a stimulant diuretic, as, *R*, *Oleum Terebinthinæ*, *Spiritus Ætheris Nitrici*, *Tinctura Juniperi*, āā , ℥ss ; *M*.; give in doses of a teaspoonful every hour or two hours, in an infusion of Hair-cap Moss. The same treatment would be applicable in cases where we suspected the presence of a calculus, and in addition Hyoseyamus might be given to allay pain, as might also the Tincture of *Verbascum*.

In cases of retention of urine from paralysis, it is better to

draw it off first with a catheter, if of long duration; if not, a stimulating enema, as of Turpentine, with warm Water, and Castor Oil, aided by a warm Mustard sitz-bath, will be sufficient. There is only one agent that I would recommend internally in these cases before the urine is drawn off, and that is Santonin; it may be given in doses of from one to three grains every hour until the urine is evacuated. This agent is especially applicable in the case of retention of urine during acute disease in children, and rarely fails of accomplishing the purpose. After the urine has been drawn off, the patient should be instructed to pass it frequently, and as an aid we might administer a stimulant diuretic, as Cubebs, Copaiba, Buchu, Tincture of Cantharides, etc. When there is great want of power, in chronic cases, the *Nux Vomica* may be given with good results, and in some cases it will be advantageous to use electricity.

In cases of irritation of the neck of the bladder and urethra and in sympathetic irritation from disease of adjacent organs, we find that an injection of Opium is in many cases sufficient; I usually order it as follows: ℞, Tinct. Opii, Tinct. Gelseminæ, Tinct. Lobeliæ, āā, gtt. xl; Aqua, ℥ij; M.; use as an enema, and repeat in half an hour if necessary. Internally, no remedies will be found more efficient than the Tinctures of Gelseminum and Macrotys in doses of twenty drops of each every hour until relief is obtained. To favor the action of these means, we employ the warm sitz bath as heretofore named. After the patient is relieved, we would treat the disease causing it according to the indications.

ENURESIS.

Incontinence of urine should properly be considered after diseases of the bladder, but as we have just noticed retention, we may notice it here. Though not a very frequent affection, it is yet met with sufficiently often, and its symptoms are so disagreeable, as to merit careful study. It is of more frequent occurrence during childhood, and may be in these cases attributed to atony of the muscular fibers closing the neck of the bladder, or to an irritation of the nervous fibrillæ distributed to the mucous membrane of the bladder, which prevents normal distension of that organ. In the adult

it is frequently the result of injury, as in cases occurring after labor, or in consequence of long-continued disease of the urethra or bladder.

SYMPTOMS.—The symptoms of the affection vary in different cases; some being able to partially retain the urine, while others have no control over it at all. In the worst cases it continually dribbles away as it is passed into the bladder, the patient being unable to retain it. As the result of this state of affairs we find that the person is rendered filthy, and is debarred society on account of the disgusting urinary odor that he can not get rid of. There is also more or less irritation of the genital organs, and of the adjacent integument, sometimes very severe, resulting in deep foul-looking ulcers. In other cases, it is retained to the amount of a few drachms, and then commences to dribble away, unless the patient has an opportunity to void it. In other cases, the bladder being irritable, it is forcibly expelled, after having accumulated to a certain extent, the patient having no power to resist its expulsion. Incontinence of urine at night is a troublesome affection among children, and even the physician is frequently consulted about it; but unlike the other it usually arises from an irritability of the bladder, which assuming control when the will is in abeyance or during sleep, causes the discharge.

DIAGNOSIS.—There is little difficulty in determining the existence of euuresis, but care should be used to ascertain definitely the cause. In females a careful examination should be made to determine that the constant dribbling of urine is not consequent upon vesico-vaginal fistula.

TREATMENT.—When dependent upon atony and relaxation of the circular fibers at the neck of the bladder, the best results will be obtained from the internal use of *Nux Vomica* and *Cantharides*, with a tonic bracing treatment; I usually direct, *R*, Extract of *Nux Vomica*, gr. iv; *Hydrastin*, 3ss; Extract of *Macrotys*, q. s.; make thirty pills, of which one may be taken three or four times a day. The Tincture of *Cantharides* may be associated with it or used separately in doses of from ten to thirty drops three or four times daily. *Beladonna* has been recommended, and is no doubt useful; it is usually associated with *Nux Vomica*, the dose being about one-fourth to one-eighth of a grain of the alcoholic extract. I have employed the stimulant diuretics, as *Styrax*, *Tolu*, *Cubebs*, *Copaiba*, and *Turpentine*, but without any permanent

good effect. Dr. Steinbeck prescribed for incontinence of urine after labor, *R*, Ergot, ʒss; infuse in Water, ʒvj; boil for a few minutes, and add of Belladonna leaves, gr. xv; when cool, strain the infusion, and add of Phosphoric Acid (medicinal strength,) ʒij; Extract of Nux Vomica, gr. iv; Syrup of Manna, ʒj; M., and give in doses of a teaspoonful every two hours. M. Frieriep recommended the use of electricity, a metallic stylet being introduced into the bladder through a gum catheter, one of the wires is connected with the stylet, the other is applied to the pubes, the current being passed through the bladder for a quarter of an hour each day. The use of the Salt water bath with brisk friction of the lower portion of the abdomen and perineum, will be found a valuable aid. In some cases much benefit will result from the application of a small fly-blister, alternately, to the hypogastric region and the perineum.

When dependent upon irritation the treatment will be directly opposite to that just named. Among internal remedies none will be found more useful than the Agrimonia, Hydrangea, Bromide of Potassa and Santonin. The irritating plaster applied to the hypogastric region is sometimes of great advantage, and it may be occasionally useful when applied to the lumbar spine. The bowels should be kept regular, and any cause of irritation in adjacent organs removed. If this does not seem to answer the purpose, I employ injections into the bladder of an infusion of Hydrastis or Cornus, or of Glycerin, or of Glycerin and Chlorate of Potassa. In the incontinence of urine in children, a bitter tonic treatment, with Iron, and the use of the Salt-water bath. For the disease itself, small doses of Belladonna and Nux Vomica answer a good purpose, or Cubebs may also be used. If it is at night, the child should be impressed with the necessity of getting up, and in a short time it will be found that they wake regularly, and the disposition to involuntary evacuation having been in this way removed, the child will eventually retain its urine all night.

PASSAGE OF RENAL CALCULI.

As already named, calculi sometimes form in the pelvis of the kidney and traverse the ureter to the bladder. If they

are round and smooth, their passage may not be difficult; but if rough, as in the case of oxalate of lime, it is attended with the most exquisite pain. The pain commences in the loins, and passes in the course of the ureter to the bladder; it frequently extends to the testicle and down the thigh, and sometimes to the hip. It is attended with great prostration, there is nausea and vomiting, with sometimes colicky pains in the abdomen, and extreme restlessness. The pain is sometimes so severe as to draw the patient double, and cause him to cry out with the intensity of the suffering. The descent of the calculus usually occupies from twelve to thirty-six hours, during which time the suffering continues, though not constant. Sometimes there is considerable hemorrhage during this period, and if the pain has been very severe we will find the patient with cold extremities, and a cold clammy sweat will break out during the paroxysms.

TREATMENT.—Having determined from the location and character of the pain that it is probably owing to the passage of a renal calculus, we will place the patient in a warm bath, as hot as can be borne, and maintain the temperature of the water until temporary relief is obtained. Internally we may administer Chloroform in doses of ten or twenty drops every half hour or hour in Glycerin, and, if need be, use in addition some preparation of Opium. The *Tinctura Opii Crocata*, or McMunn's Elixir, are the preparations I prefer. In some cases, to favor action of the skin, we might use the Compound Tincture of *Serpentaria*; demulcent diuretics, as the *Althæa* or Hair-cap Moss, rendered alkaline by the addition of a small portion of Potash, will be found beneficial. When the patient is removed from the warm bath, hot fomentations should be continuously employed. If these means should not give relief, I would place the patient partly under the influence of Chloroform, and maintain its action until the calculus had passed.

ACUTE CYSTITIS.

Acute inflammation of the urinary bladder is not of frequent occurrence. It is usually caused by injuries, or from irritating diuretics or injections, or from disease of adjacent viscera, and more rarely from cold. It may be confined to

the mucous coat, or may involve both it and the muscular, or extend to the peritoneum.

SYMPTOMS.—Acute cystitis commences with pain in the hypogastric region, of a sub-acute character, with soreness on pressure. There is a frequent desire to urinate, and these calls are attended with an aggravation of the suffering. From the sympathy existing between the bladder and the kidneys, the urinary secretion becomes scant and high-colored, and its increased acridity gives rise to a painful burning and scalding sensation when it is passed. When the disease has attained its greatest intensity, there is an almost constant desire to micturate, with an intense tenesmus, so that the patient is sometimes obliged to take hold of something with his hands when passing water, and will frequently bite his lips to keep from crying out with the severe suffering.

With the commencement of the pain the patient is usually seized with a chill or well-marked rigor, which is followed by febrile action, generally of a remittent character, and not very severe. The disease runs a course of from six to twelve days, and terminates in resolution, or the chronic form; or in some rare cases extending to the peritoneum and adjacent fascia gives rise to the formation of a pelvic abscess.

DIAGNOSIS.—Acute cystitis is readily determined by the seat of the pain, and by its aggravation during micturition, the change in the character of the urine and its difficult passage with tenesmus, is additional evidence.

PROGNOSIS.—The disease usually terminates favorably without any structural change, and except in cases in which inflammation extends to the adjacent tissues, there is but little danger.

TREATMENT.—In this case we would administer the special sedatives with Gelseminum and a diaphoretic, *a3*, *R*, Tincture of Aconite, Tincture of Veratrum, *āā*, *3ss*; Tincture of Gelseminum, *3ss*; Tincture of Asclepias, *3j*; Simple Syrup, *3ijss*; *M.*; of which a teaspoonful might be administered every hour at first, until the influence of the remedies is marked, and less frequently afterwards. A brisk cathartic of equal parts of the Compound Powder of Jalap and Bi-tartrate of Potassa may be given immediately, and repeated if necessary. A mucilaginous diuretic, or an infusion of Marsh Mallows, Hair-cap Moss or Verbascum may be administered freely, and in some cases a small portion of the Acetate or Citrate of Potassa

may be given with it, say to the amount of one or two drachms in the course of twenty-four hours. Instead of the remedies first named we might use, *R*, *Extractum Conii*, ʒj; *Potassii Bromidum*, ʒj; *Tinctura Gelsemini*, ʒss; *Tinctura Aconiti*, ʒss; *Aqua*, ʒiv; *M.*; give in teaspoonful doses every two hours.

The hot sitz bath should be freely employed, as it seems to give greater relief than other local applications. The patient may sit in a tub of hot water for two or three hours, and repeat it as many times a day; between the baths hot fomentations may be used. An enema of Tincture of Opium, *Gelseminum* and *Lobelia*, with warm water, frequently gives marked relief. As the acute symptoms pass off we will resort to the more stimulating diuretics, as the *Uva Ursi*, with *Maerostys*, *Buchu*, *Agrimonia* and *Collinsonia*.

CHRONIC CYSTITIS.

Chronic inflammation of the bladder is of more frequent occurrence than the acute. It is almost always confined to the mucous coat, giving rise to the various changes of structure noticed during chronic inflammation, as thickening of the mucous membrane, enlargement of the follicles, ulceration, etc. Its causes are various; it may arise from cold, injuries, irritating diuretics or injections, the presence of calculi, irritation from diseases of the kidneys, extension of disease from the urethra, as in gonorrhœa, and from extension of disease from adjacent organs.

SYMPTOMS.—Persons suffering from chronic cystitis usually complain of a sense of weight in the hypogastrium and perineum, with a dull, dragging pain. There is also tenderness on deep pressure over the hypogastrium. More or less difficulty is experienced in passing urine, sometimes on account of the increased mucus secretion, and at others from the seeming acridity of the urine. The patient frequently complains of pain in the neck of the bladder, extending the entire length of the urethra, and sometimes of a sensation of scalding or burning referred to the region of the bladder. In severer cases, when complicated with disease of the prostate, or when ulceration has occurred, the pain and heat in the bladder is very severe, the call to urinate urgent, and attended by violent tenesmus and straining.

The general health becomes markedly affected when the disease is severe; the bowels are constipated; the appetite impaired; the skin dry, harsh and sallow; and considerable loss of flesh and strength. The urine varies greatly; in the milder cases it seems nearly natural, but in the more severe cases, it contains mucus, pus, and the phosphates. Sometimes it is so thick by the presence of these materials that it is voided with difficulty.

DIAGNOSIS.—Chronic cystitis is determined by the location of the pains and tenderness, and its association with difficulty in passing water, and alteration in the urine dependent upon the changed secretions of the bladder. Mucus in urine may be determined by its action on litmus paper, by its particles coagulating into a thin, semi-opaque membrane, on the addition of Nitric Acid, and by its soon undergoing putrefactive decomposition, becoming ammoniacal. Pus in urine generally falls to the bottom when allowed to stand; Acetic Acid has no effect on it, but if agitated with Liquor Potassæ it forms a dense, translucent, gelatinous mass. If the urine contains phosphatic deposits it is often very fœtid, sometimes pale, at others greenish, and viscid from abundance of mucus. On placing some of the mucus beneath the microscope, abundant crystals of the triple phosphate are found entangled in it. Dr. Bird remarks that: "One point must be borne in mind in forming a prognosis from the state of the urine, viz., not to regard it as ammoniacal because the odor is offensive, and not to consider the deposit as purulent because it looks so. A piece of litmus paper will often show it to be neutral, and even sometimes acid, while microscopic inspection often proves the puriform appearance of the urine to be an admixture of the phosphates with mucus. For want of these precautions, I have seen some cases regarded as almost hopeless which afterward yielded to judicious treatment. It is quite certain that the mucous membrane of the bladder may, under the influence of chronic inflammation, secrete so much of the earthy phosphates and unhealthy mucus as to render the urine puriform and offensive without having necessarily undergone any structural change."

PROGNOSIS.—Though persistent in its character, the disease is almost always amenable to treatment. Cases in which there is enlarged prostate with ulceration of the bladder are the

most intractable, and sometimes prove fatal. When associated with chronic disease of the kidneys it is almost always fatal.

POST-MORTEM EXAMINATION.—In the milder forms of this affection, we find the mucous membrane thickened, injected and discolored, and its follicles enlarged. It is frequently softened so as to separate from the muscular coat with considerable readiness. In a still more advanced stage the entire coats are thickened and contracted, the mucous follicles enlarged; and more or less ulceration, sometimes regular and well-defined, and at others irregular and sloughy. According to Copland, "When the ulceration is extensive the hypertrophied muscular fibers appear, and resemble the columnæ carnea of the heart, presenting a purplish-red color, the mucus coat between the columns thus formed being pale, soft and swollen. Pouches or sacks generally coëxist, with dilated ureters, between these muscular columns, and are formed by the contraction of the bladder and of the abdominal muscles in expelling the urine, forcing the mucous coat in places between the muscular fibres. These pouches are lined with a diseased mucous coat, which secretes an alkaline mucus, and are sometimes the receptacles of a mortar-like matter, and finally of calculi, consisting generally of phosphate of lime. As the disease progresses it frequently extends to the ureters, pelvis of the kidney, and at last so involves its structure as to occasion death."

TREATMENT.—The milder forms of chronic cystitis are frequently cured by the employment of tonic, astringent, and stimulant diuretics, and the judicious use of counter-irritants, I have employed the Essl. Tinctures of Agrimonia, Hydrangea, and Collinsonia with marked success, sometimes adding the Santonine or Bromide of Potassa, if there was much burning or irritation. The Uva Ursi, Chimaphila and Buchu, are also employed with advantage in some cases. When there is greatly increased secretion of mucus, we may sometimes get good results from the use of Cubebs and Hydrastis, in doses of two grains of the first to five of the last, four or five times a day. Copaiba is sometimes found useful, as is also the Tincture of Cantharides. When the irritation seems acute, I have employed the Conium with Black Cohosh, with marked advantage. In addition it is very essential that the bowels should be kept in a soluble con-

dition, and if there is any disease or cause of irritation of the rectum it should be removed.

I have great faith in the use of counter-irritation in these cases, though it will not do to rely on it to effect a cure in the worst cases. I prefer the irritating plaster applied low down over the hypogastrium, and continued so as to produce suppuration; if the patient complains of the back, or there is tenderness on pressure, I use it also there. Instead of this, dry cups and sponging with strong Salt water, answers a good purpose, or we may use the Croton Oil in strong stimulating liniments.

The measures above named answer very well in the milder cases, and though we use them in the severer forms of the disease, we do not depend upon them. In such cases we resort to injections to remove morbid accumulations, and for their topical action. It is surprising to see the benefit that will result from simply washing out the bladder with tepid water, in cases of phosphatic urine with increased mucous secretion; the distressing tenesmus and burning pain and difficulty of passing water, all disappear, but return when this material again accumulates. In some cases the use of simple tepid water is all that is necessary, but in others we medicate the injection. If there is much irritability of the bladder, we might employ equal parts of Glycerin and Rose-water after the tepid injection; or, \mathcal{R} , Chlorate of Potassa, \mathfrak{zj} ; Glycerin, Rose-water, $\mathfrak{a}\mathfrak{a}$, \mathfrak{zj} ; and use one ounce as an injection; or, \mathcal{R} , Zinc Sulphas, gr. xx; Morphia Sulphas, gr. \mathfrak{ij} ; Glycerin, Aqua Rosæ, $\mathfrak{a}\mathfrak{a}$, \mathfrak{zj} ; M.; one ounce to be used as an injection, after washing the bladder out with tepid water, and if it produces too much burning, to be followed by the injection of more water to wash it out; Chloride of Zinc may be used as an injection in the proportion of one or at farthest two grains to the ounce of water. A decoction of Hydrastis or Cornus Florida has been used with success in many cases.

The internal means just named should be employed with a tonic general treatment, and the secretions kept free. Among the most efficient agents that we have employed is the Agrimonia with Collinsonia, as, \mathcal{R} , Essl. Tincture of Agrimonia, Essl. Tincture of Collinsonia, $\mathfrak{a}\mathfrak{a}$, \mathfrak{zj} ; Syrup of Prunus, $\mathfrak{z}\mathfrak{iv}$; M.; and give in doses of a teaspoonful every three or four hours; a small proportion of Hydrastis added might be all

the tonic required. In severe cases an alterative is required, as the Compound Tincture of *Corydalis*, or Compound Syrup of *Stillingia*, or small doses of *Podophyllin*, thoroughly triturated with white Sugar. Occasionally we find it useful to employ Electricity, passing the current from the spine through the bladder. The injections of warm water are best used through a double gum catheter made for the purpose, so that the fluid may escape as it is being thrown in; but usually a good sized silver catheter answers all purposes, as the syringe may be removed, allowing the water to pass out, and the injection thus repeated as often as necessary.

URINARY DEPOSITS.

We may glance briefly here at those deposits from the urine that give rise to irritation of the urinary passages, and that when aggregated form calculi. Unless there is marked irritation of the urinary apparatus, or some lesion that is likely to be explained by an examination of the urine, this examination is rarely made. The most frequent cause calling for it is the passage of small urinary concretions through the urethra. In these cases, in order to prevent their future formation, and especially to guard against calculus or stone in the bladder, we wish to determine the nature of the deposit, and thus adopt means to prevent it. Much more space should be given to the subject than we are able to devote here, but some of the more prominent facts may be stated.

In a normal condition there is no deposit from the urine, if we except a slight amount of mucus and epithelial debris, which subsides upon the urine's standing. We have already noticed that during disease of the urinary organs certain material would be found in the urine, depending on the disease for its origin. Thus, we have the elements of blood, red globules and albumen, mucus, epithelial cells, casts of the uriniferous tubules, and pus, and in certain diseased conditions of the bladder, the triple phosphate. Other deposits undoubtedly depend upon some lesion of the blood, nervous system, or the functions of digestion and assimilation. Being symptomatic in some cases, of grave changes in the system, they are worthy of notice on this account, as well as the irritation and disease of the urinary organs that they entail.

The principal deposits we have to notice are, *uric acid and urates, oxalate of lime, cystine, phosphate of lime, ammonia, phosphate of magnesia, carbonate of lime, silicic acid*. These deposits may occur in the form of minute crystals, or an amorphous material, which is slowly deposited as the urine cools. Or the particles may be aggregated so as to form small masses from the size of a mustard seed to that of a cherry-stone, which is termed *gravel*; or it may be combined in masses varying from this to one or two ounces, and in some rare cases to six, eight, ten, or even sixteen ounces, under the name of urinary calculi.

Uric acid, or as sometimes called *lithic acid*, is a natural constituent of the urine, but is found in small quantity, thirty-nine parts in a thousand of urine. It arises from the metamorphosis of tissue, and, as Liebig contends, is the immediate product of the breaking down of all nitrogenized tissues by oxidation, and that urea is a secondary product, arising from the action of oxygen and water on it. This proposition is disputed by many eminent physiologists, but all admit the fact that its origin is from the waste of the tissues, and from imperfectly elaborated ingesta rich in nitrogen. It is usually excreted in health combined with ammonia or soda, as urate of ammonia, or urate of soda. Urine containing uric acid always reddens litmus paper, and its specific gravity is generally above 1020. When an excess of acid is present, it lets fall crystals in cooling, though all is not deposited until decomposition has commenced. Very high-colored urine seldom deposits much uric acid, unless a stronger acid is added. We obtain the crystals for microscopic examination easiest by putting the urine in a bottle, letting it stand for some time, cork downward; by quickly turning it back and withdrawing the cork, the drop or two adhering to it is rich in the deposit. Lithic acid presents beautiful crystals under the microscope, usually rhomboidal in form; the urates are in the form of an amorphous sediment, either yellow or reddish in color, and redissolve on heating the urine.

As regards the pathological signification of deposits of uric acid and urates, we find that they may sometimes be deposited in excess from intemperance in eating, from temporary irritation of the stomach and other minor diseases interfering with digestion and assimilation. In other cases they undoubtedly depend upon some imperfection in the process of the retro-

grade metamorphosis of tissue. Dr. Bird remarks that: "Uric acid and urates may occur in great abundance in the urine, so as to be serious sources of irritation, and then especially become primary objects of attention as definite diseases. Still we must never forget that a mere deposit of urate of ammonia may be the result of causes hardly amounting to disease, and may be rather regarded as an evidence of the integrity of the depurating functions of the kidneys than of their lesion. We have frequently to disabuse our patients' minds of very erroneous opinions they have entertained on that point, which have added very seriously to their anxieties by apprehensions of impending disease. Uric acid and urates may be deposited in an insoluble form in the kidney or bladder, and aggregating form a mass, on which, by a kind of imperfect crystallization, great quantities of the acid or its salts may be deposited, giving rise to the formation of a calculus. Uric acid is of more serious importance than most other elements of calculus formations, not only from its constituting a large proportion of all urinary calculi, but even when they are composed chiefly of other ingredients, the nuclei on which they are deposited are, in the great majority of cases, composed of uric acid. On account of its solubility, urate of ammonia is not a frequent component of entire calculi, although it often enters with other ingredients into their composition. Indeed, calculi wholly composed of this compound are almost peculiar to children. It is hence very probable that if we by medical treatment succeed in overcoming a calculous diathesis, or dissolving a stone in the act of growth, it will be by means directed to the solution of the uric acid and its combinations."

The uric or lithic calculus, the most common of all forms, is of a brownish mahogany color, oval or flattened in form, and finely tuberculated or smooth, though not polished. It is perfectly dissolved in caustic potassa, and disappears with effervescence in hot nitric acid, the solution affording, when evaporated to dryness, a bright carmine residue. It becomes black and is gradually consumed before the blow-pipe, leaving a minute quantity of white alkaline ashes.

TREATMENT.—The principal indications in the treatment of uric acid deposit is to restore the normal action of the skin, correct any derangement of digestion, and give tone to the stomach and bowels, and finally, by regular living, open air exercise, etc., get perfect assimilation of the food, and better

excretion of the detritus of the system. In addition, certain means are used to neutralize the uric acid, or so change it as to prevent deposit. Among all the measures, none seem more important than those directed to obtaining normal action of the skin, as an arrest of perspiration furnishes material for the formation of a deposit, by retaining in the blood elements that are capable of rendering uric acid insoluble. The frequent use of the warm bath seems to be adapted to many cases. It may be rendered tonic and bracing by the addition of common Salt, or, still better, by Carbonate of Potassa, or stimulant by the addition of Capsicum or Mustard. It should always be followed by brisk friction with the hand, a coarse towel, or the flesh brush; and the patient should invariably use a soft, loose, but thick flannel next the skin, and the other clothing should be warm. In place of the warm bath, the vapor bath may be used: it may be extemporized by sitting the patient on a wooden-bottomed chair, with his feet in a bucket of hot water, and place another bucket of boiling water under the chair, and raising a sufficient quantity of steam by immersing in it a hot iron or brick, a blanket being drawn closely around the patient and chair to prevent the escape of vapor. In some cases a cold sponge bath may be used, followed by rubbing with a coarse towel or flesh brush. In some cases the bath should be rendered decidedly stimulant, by the addition of Capsicum, or tonic, by using an infusion of the bitter tonics.

Means to restore the tone of the stomach, is of great importance, as by correcting disordered digestion a double object is attained; the perfection of the primary assimilation of the food by which the entrance into the blood of a crude nitrogenized matter capable of being converted into uric acid, is checked; and the prevention of the generation of any acid, the product of unhealthy digestion, which might be absorbed into the circulation, reach the kidneys, and act as a precipitant of uric acid.—(Bird.) Various means will have to be resorted to as named under the head of dyspepsia. A bitter tonic, as an infusion of Hydrastis, Cornus or Populus, or other preparations of similar agents, with moderate doses of Carbonate of Potassa or Soda, and if necessary, a preparation of Iron, sometimes answer a good purpose. A pill of Nux Vomica and Hydrastin, as heretofore named, answers a good purpose, and may be associated with an alkali. The Compound Powder of Rhubarb and Potassa, in infusion, or the

Compound Syrup of Rhubarb, accomplish all that is desired in some conditions. If there is any tenderness on pressure, or pain in the epigastric region, the irritating plaster should be employed until relieved.

Careful attention to the bowels, to keep them in a soluble condition is necessary. The Podophyllin Pill: \mathcal{R} , Podophyllin, gr. x; Leptandrin, gr. xx; Extract Conium, gr. xx; M., and make twenty pills, is usually sufficient, in doses of one or two daily, until the bowels are regulated.

All this may be attended to, and yet if the patient is careless as regards his habits, it will be of no avail. The most rigid attention to the quality and quantity of the food is imperative, and frequently of far more importance than medicine. It should be, to a considerable extent, of easily digested animal food, with such vegetables as are easily digested, but none that will produce acidity, or be long in digesting. It is better for the patient to eat too little, rather than too much, as a badly digested meal, from overloading the stomach, in a person suffering from gravel or calculi, will become a double source of mischief, by furnishing too much nitrogen, and giving rise to acid fermentation. Moderate exercise in the open air is indispensable to a proper performance of the functions of the body, and especially of digestion and assimilation, and thus becomes a very important part of the treatment.

Colehium has been recommended in this case by several writers, and used with care may sometimes prove beneficial. Dr. Cooper ordered low diet, vegetable food, the warm bath, and Carbonate of Soda, or Potash, given three or four hours after taking a meal; vegetable acids might be used, but everything liable to generate acids in the stomach was to be scrupulously avoided. Mr. A. Ure recommended Benzoic Acid, in doses of five or ten grains, three times a day, to prevent the formation of uric acid; and Dr. O. Rees, as strongly recommended Citric Acid, which is undoubtedly of service in some rheumatic and gouty cases. The alkaline agents, especially Carbonate of Potassa and Soda, and the Acetate, Citrate and Tartrate of the same, and Liquor Potassæ, are the only agents that as yet have seemed to have any influence in lessening the size of the urinary concretions, and their action is doubtful.

OXALURIA. — Oxalate of lime is the next most frequent deposit to uric acid and the urates, and is almost always asso-

ciated with an excess of the last named agents. It is only recently that it has been studied, as the crystals are so minute as to require the microscope for their examination; the formation of gravel being of rare occurrence. At first it was supposed to arise from the decomposition of sugar, but this idea was exploded when it was found not to be present in diabetes. Dr. Bird remarks, "From the symptoms presented in cases of this disease, there is no difficulty in proving to a demonstration the positive and constant existence of serious functional derangement of the digestive organs, especially the stomach, duodenum, and liver; and further, that the quantity of oxalic acid generated is, to a very considerable extent, under the control of diet; some articles of food quite free from oxalic acid at once causing the excretion of this substance in very large quantities, whilst others appear to have the effect of nearly totally checking it. These circumstances alone, together with the emaciation so generally present in the disease under consideration, at once prove, that whatever be the immediate agent which causes the kidneys to secrete the oxalic acid from the blood, the primary cause must, as Dr. Prout has well and satisfactorily shown, be referred to an unhealthy condition of the digestive and assimilative functions."

The specific gravity of urine in oxaluria is usually from 1020 to 1030, and as before remarked in many cases it contains an excess of uric acid and urates, urate of ammonia being deposited on cooling and sometimes tinted by purpurin.

The deposit of oxalate of lime occurs in the form of white glistening powder, which when examined under the microscope it is found to consist of transparent octahedra, with sharply defined edges and angles. The best way of making the examination is, to allow a portion of the urine passed a few hours after a meal, to stand until cool, then decant off the major portion, and pour part of the remainder into a watch glass, when on applying heat the crystals of oxalate will be collected at the bottom.

Oxalic calculi are next in frequency to the uric, they are generally of a dark brown color, rough and tuberculated, hard, compact, and imperfectly laminated. It is insoluble in the alkalies, dissolves slowly in nitric and hydrochloric acid, if previously well broken up, and under the blow-pipe expands and effloresces into a white powder. A variety of this species

is remarkably smooth, and of small size, and from its shape has been described under the name of *hemp-seed*.

The *symptoms* of oxaluria are those of greatly depressed vitality. The appetite is irregular, and digestion imperfect, with well marked dyspeptic symptoms. The secretions are deranged, the skin being very susceptible to external impressions, at times dry and harsh, again soft and flabby and covered with an unnatural perspiration; the bowels are usually torpid and sluggish, and do not respond well to the action of medicine. The patient is low-spirited and melancholy, the temper is irritable, and there is great restlessness, and constant brooding over his condition. There is frequently a very disagreeable sense of weight and pain in the loins and small of the back; the urine is voided with increased frequency, and with more or less heat and scalding. The patient becomes greatly emaciated as the disorder advances, and frequently sinks into a state of confirmed hypochondriasis. If the disease goes thus far, some other portion of the system becomes the seat of disease, as the lungs, liver, bowels, etc., which carry the patient off.

TREATMENT.—In the treatment of oxaluria, the most prominent indications are, to improve the general health, and to establish secretion from the other excretories. As there is a condition of confirmed dyspepsia, this must be managed as heretofore named. I might here remark, that I have found the strong infusion of Peach-tree bark given in quantities of two teaspoonsful every three hours, and the Essl. Tincture of Collinsonia in half teaspoonful doses four times a day, very successful remedies in these cases. I frequently make a prescription as follows: R, Essl. Tincture of Collinsonia, Essl. Tincture of Cornus, āā, ʒij; Extract of Nux Vomica, gr. iij; Alcohol, ʒss; Glycerin, ʒj: Simple Syrup, ʒij; M.; and give in doses of a teaspoonful four or five times a day. The Hydrastis is a very efficient agent in some of these cases, as is also the Ptelea, Populus and Liriodendron. These remedies should in all cases be associated with the mineral acids, the Nitric being recommended by Dr. Prout, but a combination of one part of Nitric and two or three of Hydrochloric by others. If there is tenderness on pressure over the epigastrium, I would strongly recommend the irritating plaster. To overcome constipation of the bowels where it exists, we may employ the Podophyllin Pill, named under the head of uric acid, or the Powder of

Sulphur and Phosphate of Soda, named in preceding pages. The diet should be regulated with the greatest care, all agents that produce flatulence or acidity of the stomach being discarded, animal and vegetable food being used in about equal proportions. The same means to increase elimination from the skin, as in the case of uric acid, should be employed here, and especially should flannel be worn next to the skin, and warm clothing to protect the body against sudden changes of temperature. In many cases, all drinks but water will have to be excluded, and especially should wine, beer, and other stimulants be proscribed: a small portion of brandy being allowed, if absolutely necessary.

PHOSPHURIA.—A considerable quantity of phosphoric acid is excreted from the blood through the kidneys in health, usually divided between four bases, soda, ammonia, lime and magnesia, all of which are either soluble themselves, or rendered so by the presence of some acid, the presence of a very minute portion being sufficient for this purpose.

It may also be deposited in a healthy condition of the system, as after eating, laborious exercise, and especially after severe mental labor, but the deposit continues for only a short time; where continuously deposited, it is always indicative of important functional, and sometimes of organic disease. Dr. Bird remarks that one general law appears to govern the pathological development of these deposits, viz: that they always exist simultaneously with a depressed state of nervous energy, often general, more rarely local in its seat. Of the former, the result of wear and tear of body and mind in old people, and of the latter, the effects of local injury to the spine, will serve as examples. "Three forms of phosphatic deposit may be named; the *triple phosphate*, *phosphate of lime*, or calcareous deposit, and the mixed deposit, a combination of the two preceding. The first is almost always associated with dyspepsia, the digestive functions being poorly performed, the patient irritable and restless, with loss of flesh and strength, so that he is fatigued by slight exertion. The urine is usually copious, of a light amber color, or in some cases it is dark, and of a high specific gravity, 1025 to 1030. The deposit of phosphate of lime occurs from urine secreted in large quantity, of low specific gravity, and readily decomposed by the atmosphere. The mixed deposit usually occurs combined with a large quantity of mucus, the urine being

pale, foetid and depositing a thick mortar-like sediment on standing. It usually occurs in cases of injury, or severe diseases of the spine, organic disease of the kidneys and bladder, in the severe forms of dyspepsia, and in persons who have been exhausted by severe mental labor, anxiety, night-watching, and during the progress of some cachectic affection that debilitates the system. The symptoms are those of imperfect digestion, mal-assimilation and nutrition, and disordered innervation.

Deposits of the phosphates are always white, unless colored with blood, are insoluble in ammonia or liquor potassa, but soluble in dilute hydrochloric acid. In a majority of cases urine depositing much of the phosphates is alkaline, though they are deposited when it gives an acid reaction with litmus paper, but in this case the acidity does not depend upon free acid, but upon neutral salts. This deposit often settles to the bottom, like a thick clond of mucus, for which it is frequently mistaken; we may at once detect their true nature, however, by the addition of hydrochloric acid, which dissolves the phosphates but does not affect the mucus. When examined by the microscope, the triple phosphate presents beautiful crystals, of the form of triangular prisms, small stellate concretions, and peniform crystals. The phosphate of lime does not occur in crystals, but occasionally in irregular crystallized masses. Calculi of phosphate of lime are not of frequent occurrence, but it sometimes forms alternate layers with other matter. When it occurs it is usually small, of a pale-brown color, of a loosely laminated structure, not fusible with the blow-pipe, but readily soluble in hydrochloric acid without effervescence. The ammoniaco-magnesian calculus is of a white color and friable, looking a good deal like a mass of chalk; it exhales an ammoniacal odor before the blow-pipe, is not affected by caustic potassa, but is easily dissolved in dilute acids. Another form of phosphatic calculi has been denominated *fusible*; it is white, extremely brittle, easily separated into layers, and leaves a white dust on the fingers. It is not affected by caustic potassa, is soluble in hydrochloric acid, and is melted into a transparent pearly glass under the blow-pipe. Both these last forms often attain an immense size, and frequently form incrustations on foreign bodies.

TREATMENT.—The general treatment will be somewhat similar to the other forms. The bitter tonics and iron, to improve

digestion and the quality of the blood, should be steadily employed. In some cases there seems to be such a loss of tone on the part of the stomach, that tonics have no effect; in such cases I direct an emetic two or three times a week with the happiest results. As in the case of oxaluria I have obtained most excellent results from the use of *Nux Vomica* and *Strychnia*, and the *Collinsonia* and *Agrimonia*; *Quinia* to the extent of from four to eight grains a day, is often of marked benefit.

The urine should be kept acid to prevent a deposit, and for this purpose dilute Nitric Acid is most frequently used. The bowels should be kept in a soluble condition, as heretofore named, and strict attention given to the skin, and its secretion favored by the use of the bath, friction, and wearing flannel and warm clothing. The diet should be carefully selected, plain, but generous, and to a considerable extent of animal food.

CHAPTER VI.

DISEASES OF THE ORGANS OF LOCOMOTION.

Under this head we may include all affections of the motor apparatus, the bones, articulations, and muscles, with the various tissues that enter into their formation, or are connected with them. Most of these affections are quite painful, and some very serious. They are more annoying on account of the difficulty of motion; and frequently the impossibility of keeping the structure at rest, is one of the most serious parts of the disease.

RHEUMATISM.

Rheumatism has been variously classified—sometimes as a disease of the blood, at others as involving principally the nervous system, again as arising from deficient secretion, and lastly, from an imperfection in the process of digestion and assimilation. Undoubtedly all of these elements aid in making up the disease, as we have now sufficient evidence that it depends upon some material (lactic acid), generated during digestion in some cases, and in others produced during the breaking down of tissues; that this impairs the quality of the blood and unfits it for the performance of its proper functions; that its non-removal by the excretory organs is dependent upon their impairment; and lastly, that these associated, produce disordered innervation, and when the material is deposited in the tissues it sets up a peculiar form of inflammation which we term rheumatism.

Four forms of rheumatism may be distinguished, though they run into one another, and sometimes rapidly change from one to another. They are, rheumatic fever, acute inflammatory rheumatism, sub-acute rheumatism and chronic rheumatism. The causes of rheumatism are, cold from sudden changes of temperature—arrest of secretion from other causes, imperfect digestion, and causes that depress the nervous system.

SYMPTOMS.—*Rheumatic fever*, usually makes its appearance after exposure to cold, followed by sudden arrest of secretion. It is ushered in with a marked chill or rigor, lasting from one to six hours, during which time, the patient not only complains of being cold, but of pain in the back and head, and a dull aching and soreness in all parts of the body. The fever that follows is usually high; the skin hot, but frequently slightly moist; the pulse hard, and from 100 to 120 beats per minute; the tongue coated white; appetite lost; sometimes nausea and vomiting; bowels constipated, and urine scanty and high-colored. These symptoms usually increase up to the second or third day, when the fever is very intense; after this it continues without change up to the fifth, seventh, or, in some cases, the fourteenth day. There is more or less pain in all parts of the body, and sometimes we find it locating temporarily in the joints of the fingers, wrists, elbows, knees or feet, sometimes continuing very steadily in one or two places, but rapidly changing in others. Usually the swelling in these cases is not very marked, but sometimes the contrary is the cause when the local affection resembles the next form of the disease. Occasionally the fever runs so high as to produce delirium, which is followed by prostration, and a low typhoid condition.

Acute inflammatory rheumatism, almost always commences with a chill, sometimes with a marked rigor, and following this more or less marked febrile action. In some cases we will find the fever running as high for three or four days as in the preceding case, being remittent in form, with evening exacerbations and morning remissions; it gradually subsides after this, until it is only marked in the evening. In other cases the fever is not very severe from the commencement, seeming to depend more on the local disease than on any general or systematic cause.

The pulse is usually broad, open and bounding, and from 90 to 110 beats per minute; all the secretions are arrested, the skin in some cases being harsh and dry, in others hot but moist, with sometimes profuse secretion; the tongue is covered with a whitish coat, the mouth is dry and the appetite very poor, or entirely gone.

With the coming up of febrile action, and sometimes before, the local affection becomes manifest; most usually the disease affects the large joints, frequently the smaller ones—as of the

fingers, and in some cases a group of muscles, as of the calf of the leg, the muscles of the thigh, abdomen or arm: and again we find it confined to aponeurotic expansions, as the dorsum of the foot or hand, or the plantar and palmar surfaces.

If a joint is the seat of the disease it becomes swollen, red, hot and painful; the pain being most acute, tearing, burning, gnawing, tensive or lancinating. It is not usually constant as to intensity, but comes on in exacerbations, in which the intensity of suffering is so great as to make the patient cry out. In other parts, the swelling seems to be a mere puffiness of the part, though usually the part is exquisitely tender. The local lesion is so severe, that the part is rendered entirely useless, the slightest movement aggravating the pain, and the patient can not bear the slightest pressure, even of the bed clothes. In some rare cases the part does not seem red, but more or less blanched.

As the local affection progresses in some cases, the swelling increases, as well as the tenderness, until it seems that the part can not get larger. Very often, however, we find the local disease changing its location, and shifting from joint to joint, and from part to part, and seeming to be lit up in its new location in a few hours to its original intensity; this is termed a *metastasis* of the disease. The part left is not by any means well, though the pain has disappeared, and the swelling and redness is to a considerable extent gone; there is still some tenderness on pressure, and the part is weak and useless, regaining its strength slowly.

The disease lasts a variable length of time: in some cases it may be arrested in three or four days, in others from the seventh to the fourteenth day; and if allowed to run a regular course without interference saving good nursing, it will terminate usually from the second to the sixth week; and in severe cases it may run this long or longer, under the best of treatment. During its progress we may expect great variation in the general as well as local symptoms; the fever at times becomes more intense, and is attended with disturbance of the nervous system, sometimes amounting to delirium. The disease gradually declines, the fever passing off, and the pain, swelling and redness slowly leaving the parts affected. Even when the pain has ceased, and the parts have resumed to a considerable extent their former condition, they are still very

weak, and marked twinges give notice that they are not yet in a state to bear rough usage.

In *sub-acute rheumatism*, there is usually but little fever; the pulse may be increased five or ten beats per minute, and be more full and bounding, or hard, the skin harsh and dry, the tongue coated, the appetite somewhat impaired, bowels constipated, and urine scanty and deeper colored. These symptoms follow instead of preceding the local affection. One or more parts may be affected, the larger joints suffering most frequently, the smaller ones next, and the aponeurotic expansions and muscles least. When a part is attacked, it commences to swell and becomes hot and painful, though in many cases it is not reddened. The pain, as in the preceding case is gnawing, tearing, tensive and contusive, or lancinating, though usually not so severe as in the acute form. It does not change its position so frequently, but still a metastasis is not uncommon. It is full as stubborn as the more acute malady, and in fact I prefer to treat the more acute forms of the disease.

We have heretofore seen that rheumatism may attack the heart by metastasis, and that this is one of the most severe complications of the disease. It is evidenced by the feeling of oppression at the præcordia, pain of a lancinating, tearing character, and faintness, more or less difficulty of breathing, anxious countenance, and the small and rapid pulse—symptoms which can not very readily be misunderstood. Rheumatism may affect the eye, producing rheumatic ophthalmia, or the structures of the ear, the brain, the membranes of the spinal cord, and the sheathes of the nerves, and to some extent the stomach and alimentary canal.

DIAGNOSIS.—We have but little trouble in making the diagnosis of rheumatism, the swelling, heat, and peculiar character of the pain being generally sufficient. It is true, that in cases of disease of the bones, or of the cartilages or synovial membrane of a joint, it is sometimes almost impossible; yet the character of the pain, the general condition of the system, and the fact that rheumatism is rarely confined to one point, will frequently enable us to decide. Rheumatism of the back, or lumbago, is sometimes mistaken for disease of the kidneys or spinal cord; but if we recollect that in disease of the kidney we will usually have retraction and pain in the testicle, change in the character of the urine secreted, and more or less constitutional disturbance, peculiar to suppression of urine; and

that in disease of the spinal cord to this extent, we would have disturbance of all the nerves given off below, we will not readily make the mistake. Neuralgia is very frequently confounded with rheumatism, and it is sometimes almost impossible to distinguish them; but in a majority of cases, the pain being exquisitely sharp, tearing or lancinating, and in the course of a nerve, will enable us to see that it is neuralgia.

PROGNOSIS.—The prognosis in rheumatism is almost always favorable, and in the exceptional cases the danger is more from the complication or metastasis than the original disease. But when we come to determine the time that the disease will last, we find ourselves in the dark. It runs a very variable course if not treated, is sometimes very amenable to remedies, and in others is not favorably affected by any measures adopted.

POST-MORTEM EXAMINATION.—If located in the articulations, we find them swollen and exhibiting evidences of inflammation. The principal enlargement is caused by effusion into the cavity of the synovial membrane, which is usually slightly thickened, and in some cases the articular cartilages are softened. The synovia frequently differs from its healthy condition by being more viscid, whitish, or having more or less flocculent material floating in it. If the muscles or tendinous aponeurosis were affected, we may or may not have the evidences of inflammation in addition to the swelling. If the serous membrane, the pericardium, pleura, or membranes of the spinal cord, are the parts diseased, we will generally find evidences of inflammatory action, and more or less effusion, with adhesions or coagulable lymph on the free surface, or flocculi in the fluid effused.

TREATMENT.—In rheumatic fever, I usually commence the treatment with the use of the special sedatives, as, \mathcal{R} , Tincture of Veratrum, 3ss; Tincture of Aconite, gtt. xx; Water, 3iv; \mathcal{M} ., and give in doses of a teaspoonful every half hour, or hour, until the patient is entirely relieved. Associated with this, to stimulate the skin and kidneys to action, I order Essl. Tincture of Aselepias, 3j; Saturated Tincture of Macrotys, 3ss; Nitrate of Potassa, 3ij; Water, 3ij; Simple Syrup, 3ss; in doses of a teaspoonful every two hours. It is better to leave the Nitrate of Potassa out of the prescription, and give it in weak solution to the extent of two or three drachms in the twenty-four hours. These means are aided by the employ-

ment of the alcoholic vapor bath, or the common vapor bath; or the use of the warm bath, or simple sponging with warm water rendered alkaline by the addition of Carbonate of Potassa. In some cases we might employ the spirit vapor bath, and an active diaphoretic, as the Compound Tincture of *Serpentaria*, packing the patient warmly in bed after the bath, with bottles of hot water to the extremities, to keep up perspiration. Or we might rely on a nauseant diaphoretic, with an alkaline diuretic, as, *R*, *Asclepias*, *Eupatorium*, $\bar{a}\bar{a}$, 3j ; *Sanguinaria*, 3ij ; Nitrate of Potassa, 3ij ; pulverize finely and thoroughly mix. This may be given in doses of from half to one drachm, in warm water, every two or three hours, until it produces nausea, and then in smaller doses to keep up diaphoresis. It may be assisted by the hot foot bath, or vapor bath, and in certain cases will act speedily and give the greatest satisfaction—the only objection to it being on account of its bulk. In some cases where there is an undue tenseness of the system, with great suffering from wandering pains, or irritation of the stomach, we will find it good practice to premise all treatment with a thorough emetic. The bowels may be kept open through the course of the treatment with the *Podophyllin* Pill.

Usually as soon as the pulse is brought down, we may administer Opium at night, to quiet pain and induce sleep; from one to three grains being required for the purpose; Morphine seems to irritate the stomach. As soon as secretion is established, we find it important in many cases to employ Quinia, giving it during the morning remission in quantities of from eight to twelve grains, and repeating it daily, until the fever is arrested.

In acute inflammatory rheumatism, a very similar treatment is pursued in the first stage. We may employ the special sedatives, with diaphoretics, and an alkaline diuretic, as there named; or, we may first give an emetic, followed by a moderate cathartic, and then the sedatives, and measures to promote secretion. I have seen most marked beneficial results follow the administration of a thorough emetic in severe cases of this kind; and it seems to prepare the system for other medicines. The action of *Asclepias* and *Maerotys* is very marked in some of these cases, following the use of the special sedatives, or sometimes without them.

The saturated Tincture of *Maerotys* may be given in doses

of from twenty to forty drops, with an equal quantity of the *Aselepias*, and repeated every two hours, until it produces a feeling of pain and heaviness in the head. I have used the combination of *Aselepias* and *Eupatorium*, mentioned in a preceding page, with the most marked advantage. The vapor bath, and warm bath is associated with these means as in the preceding case. Of the alkaline diuretics, I prefer the Citrate of Potassa, to the extent of three drachms daily, with a teaspoonful of Lemon-juice, every two hours; if the Citrate is not readily obtained, the Acetate may be used in its stead. The secretions being free, there is no trouble in using Opium to quiet the pain, and if there is periodicity, Quinia is sometimes a very effective remedy.

I have been tempted to believe that in some cases the administration of a simple solution of Carbonate of Potassa, and its local application, the part being kept warm, and the use of a sufficient quantity of Opium to quiet pain, the bowels being kept open with the *Podophyllin* Pill, would answer a better purpose than any other treatment. The Tincture of *Xanthoxylum*, taken internally and locally applied, has answered a good purpose in cases where there was unnatural perspiration.

As regards local applications, they are sometimes useful in relieving pain, but at others seem to have no effect. Various remedies are employed, stimulant, narcotic, sedative, rubefacient, etc., and there are no means of determining in a given case, which will prove the best; equal parts of *Aqua Ammonia* and Olive Oil answers a good purpose as a stimulant when applied by friction, and as a rubefacient when covered to prevent evaporation. A most excellent liniment for rheumatism may be extemporized by ordering, \mathcal{R} , *Aqua Ammonia*, $\mathfrak{z}\text{ij}$; Olive Oil, $\mathfrak{z}\text{ij}$; Chloroform, Tincture Aconite, ãã , $\mathfrak{z}\text{jss}$; M .; shake thoroughly when using and apply with flannel. The common Chloroform Liniment, \mathcal{R} , Tincture of Aconite, Chloroform, Oil of Sassafras, Alcohol, ãã , $\mathfrak{z}\text{j}$; M .; is a very good application to relieve pain; equal parts of the Tinctures of *Phytolacca*, *Stramonium* and *Belladonna*, continuously applied, or the application of a warm decoction, is sometimes very useful in articular rheumatism; hot applications of any kind give relief in some cases, but in others seem injurious, and may be well replaced by cold water. Indeed it has been recommended to apply a bladder filled with ice and salt,

to the inflamed part as a means of arresting pain and diseased action, and though I do not doubt its efficacy in some cases, I would fear destruction of tissues from its indiscriminate use. A simple solution of Carbonate of Potassa in some cases, and wrapping with cotton wool, or as I prefer, wool itself, is many times preferable to any of the many liniments made use of. If there is great tumefaction and pain in consequence, the use of cups at a short distance from the diseased part, may be useful.

I am satisfied that woollen clothing is of great importance in the treatment, and if possible get my patient divested of every thing cotton, and in bed between blankets; perfect quietude should be maintained, especially of the part affected, as rest is an important element of cure.

The patient may be permitted to drink freely, and allowed a moderately full diet, if well digested. If a stimulant is necessary, native wine will usually be found the best. All complications must be met as they arise, in the manner laid down under their proper heading, and especially should the physician be on the lookout for the first symptoms of cardiac disease.

In sub-acute rheumatism, we will in many cases obtain most marked results from the use of the Tincture of Macrotys. For an entire season, I did not have occasion to resort to any other remedy, if we except means to keep the bowels in a soluble condition, and an opiate to relieve pain. So marked was its effects, that I had nearly concluded that it was a specific; it has failed me in many cases since, but I yet consider it a valuable remedy. A very good combination in these cases, is \mathcal{R} , Extract. Conii, 3j; Potassii Iodidum, 3ij; Tinctura Stramonii, 3ij; Aqua, iv; \mathcal{M} ., and take a teaspoonful four times a day. Colchicum may be used with advantage in some cases, especially where associated with gout; I use the English tincture of the seeds, in doses of from ten to thirty drops every three hours. A solution of Citrate of Potassa, so that two or three drachms will be taken in the course of twenty-four hours, with the addition of Lemon-juice in some cases, answers a very good purpose. The local applications may be the same as in the preceding case.

CHRONIC RHEUMATISM.

Chronic rheumatism most frequently results from the acute, or sub-acute form, but in some cases may be slowly developed independently of them. In some cases it has its origin in imperfect digestion and assimilation, which we would readily account for, on the theory that an increase of lactic acid was the cause of the disease. In others it seems to have arisen from, and is dependent on deficient action of the excretory organs, and possibly on some change in the process of retrograde metamorphosis, by which the broken down tissues are converted into material fit for excretion; and in others, upon some derangement of innervation. It is true that all this is speculative and not proven, but we have good reasons for these opinions. Acting on them in the administration of remedies, we find ourselves successful, so far as the general disease is concerned, but not always with the local malady.

SYMPTOMS.—As regards the general health of the patient, we find it varies greatly in different cases. In some there is manifest derangement of the stomach, various unpleasant sensations, as of fullness, pain, acidity, flatulence, etc., occurring after a meal, and showing that digestion is not well performed. In such cases we find the patient reduced in flesh and strength, and exhibiting evidence of marked general cachexia. In others the secretions are manifestly at fault, the kidneys acting poorly, or the skin is harsh and dry, or relaxed and flabby, and the bowels irregular. It is true that we find cases of chronic rheumatism, in which we can not detect the slightest lesion, except the local rheumatic disease, what loss of flesh and strength there is being attributable to the continued suffering and loss of rest resulting from it; metastasis occurs in the chronic as well as the acute disease.

It most frequently affects the articulations, they being swollen, tender and painful; one or more may be affected at the same time, usually not more than two, and the amount of swelling, discoloration and pain, varies in different cases; sometimes the tenderness and pain are exquisite, at others it is not very marked; the articulation is in some cases entirely useless, motion or pressure giving rise to severe suffering; at others, though lame, it may still be used. In some cases it takes the form of synovial dropsy, it being very

evident that the enlargement is almost entirely dependent upon effusion into the joint. At others the enlargement seems to be dependent upon material within the synovial membrane, but it is not nearly so mobile as before. In other cases there is marked enlargement of the articular extremities, or a dull, heavy, gnawing pain, with great tenderness, when the bones are placed so as to give rise to pressure on their extremities. In other cases the deposit is undoubtedly outside, involving ligaments, tendons and muscles, that pass between the two bones, causing relaxation in some cases, contraction in others, thus giving rise to deformity. In some cases this is very marked, bones being dislocated, or tendons so shortened as to produce unnatural flexion or extension, or to change the position of the bones, as in the case of the knee joint, the articulation of the tibia being so changed as to produce knock-knee, and turn the toes outward; or, in the case of lumbago, or rheumatism of the dorsal or lumbar portions of the spine, giving rise to spinal curvature and other distortions. If it attacks a group of muscles, we may find them gradually shortening, until a limb is rendered entirely useless, as in the case of contraction of the ham-string muscles, and flexion of the knee, and finally terminating in the almost entire change of the muscular structure.

DIAGNOSIS.—In some cases the diagnosis is not difficult, the rheumatic symptoms being well developed, but in others it is almost impossible to distinguish between this and other diseases of the articulations, especially if but one joint has been affected. We may, as a general rule, say, where more than one articulation is affected during the continuance of the disease, that it is rheumatism; if but one, and there are no general symptoms to be depended upon, especially if the patient has not been subject to rheumatism previously, that it is some other affection.

PROGNOSIS.—The prognosis is not always favorable in chronic rheumatism, though it is so in a majority of cases. It is true that the disease has but little tendency to a fatal termination, unless it results in suppurative inflammation of the larger articulations, yet there is in many cases such change of structure that it is impossible to effect a cure, and in some cases the constitutional affection seems to be dependent upon causes beyond our reach.

POST-MORTEM EXAMINATION.—When the joints have been

the seat of the disease, we find them variously altered. In some cases there seems to be nothing but an increase of the synovia; in others the synovial membrane is thickened, especially the false ligaments, in some cases roughened, covered with shreds of false membrane, or adherent, coagulable lymph, and the synovia more or less viscid, shreddy, and in some cases purulent. The articular cartilages are sometimes softened, at others eroded, and in some cases completely destroyed. The articular extremities of the bones are not unfrequently enlarged, and the ligaments, tendons, and muscles contracted or relaxed. When affecting other parts, if of long duration, it may so change their structure as to leave little resemblance to their original condition.

TREATMENT.—The general treatment of chronic rheumatism will have to be varied to correspond with the symptoms in each case. If the digestive apparatus seems to be prominently affected, the means recommended under the head of dyspepsia will be appropriate. It must not be forgotten that imperfect digestion lies at the root of very many cases, and we can only get rid of the tendency to rheumatism by correcting these derangements. It is very essential to make the diagnosis between chronic rheumatism affecting the entire system, and that that has become exclusively local. In the first case I have obtained marked advantage from the use of an emetic repeated twice or three times a week; it seems to rouse the entire system, and give free circulation to the blood, and improve all the functions. The bitter tonics and Iron are indicated in all cases where there is a tendency to anæmia, or where there is want of tone in the digestive apparatus. The vegetable and saline alteratives are always useful, though in some cases their effects are not as speedy as in others. I would recommend the Extract of Conium, with Macrotys and Iodide of Potassium, as, *R*, Extract of Conium, 3j; Tincture of Macrotys, 3j; Iodide of Potassium, 3ij; Aqua, 3iv; *M.*, and give a teaspoonful four or five times a day. The Compound Syrup of Stillingia, with Iodide of Potassium, or Compound Tincture of Corydalis, with the same, act well in cases of long-continued local disease. The Tincture of Phytolacca and Corydalis, with a small portion of Stramonium, is very good. Sometimes the Tincture or Wine of Colchicum gives good results, as does also equal parts of Tincture of Asclepias, Gelseminum, and Macrotys, in teaspoonful doses every

three or four hours. In many cases I prefer a simple solution of Acetate or Citrate of Potassa, in addition to the measures called for by the derangements of digestion.

The Propylamin has been highly recommended in rheumatism, and urged as a specific in all forms. I have tried it to a considerable extent, and have found it of advantage in some cases of the sub-acute and chronic forms of the disease, in which it may be used. The local applications made use of are various, all the measures heretofore recommended being used in these cases. My favorite application is the irritating plaster, directly to the diseased part, though not carried so far as to produce suppuration. In some cases it seems to produce a marked influence, even before redness has been induced. A poultice of a decoction of one part of *Podophyllum* to three parts of *Cornus*, thickened with Wheat-bran, or a poultice made with the *Phytolacca* is sometimes useful, as is also the application of a plaster of *Belladonna*. When the joints are seriously diseased during the progress of rheumatism, they may be treated as hereafter named. Among the external applications to increase the tone of the skin, the cold water bath has answered my purpose better than anything else; occasionally cases will be met with in which great benefit will be derived from the warm bath, or the vapor bath, and in others by the use of the cold douche. Electricity has been advantageously employed for the relief of pain, the current being passed from the part to the spine, and for the purpose of stimulating absorption passed in the opposite direction.

PERIOSTITIS.

Inflammation of the periostium is sometimes rheumatic in its origin, at others it arises from constitutional syphilis, and in some cases it is the result of cold or of injury. In either case it is a true inflammation, resulting in change of structure; thickening, deposit beneath it, and finally suppuration, most usually next the bone. Being the nutritious membrane of the bone we find that it occasions disease of that, if its change of structure is sufficient to impair the circulation, or if it is separated by the formation of pus; it is almost always accompanied by swelling of the superimposed parts, which frequently seem to partake of the inflammation.

SYMPTOMS.—The first evidence of the disease is usually a deep seated soreness and aching of the part, which is increased by motion. If extensive and acute, chills and rigors now make their appearance, followed by brisk febrile action, the pulse being especially hard, and the patient irritable and restless. The fever is usually of a remittent form, the exacerbations coming on in the afternoon. In some cases the fever goes down in three or four days, nothing being left to mark it but the slightly accelerated and hard pulse, and deranged excretions. In others it assumes an ataxic or irritative character, attended by many of the symptoms heretofore named as typhoid, and running a course of from three to six weeks. In cases where but a small portion of the periosteum is affected, the inflammation being mild, but little febrile action is noticed.

As before named, a sense of soreness and aching usually precedes the chill, when the fever comes up, the inflammation is fully developed; there is a deep seated, tense, contusive pain, sometimes seeming as if the part would be torn to pieces, by some internal pressure. If the bone is superficial, the parts above are involved in the inflammation, become swollen, red and glistening, hot, and painful. If deep seated, as when the shaft of the femur, or the fibula, or posterior surface^d of the tibia are involved, there may be but little external evidence of the disease. Usually, there is a glistening appearance of the skin, with increased heat.

The inflammation runs a variable course, sometimes rapid, sometimes slow. The symptoms continuing, and usually increasing in intensity, the patient complains of deep seated, throbbing pain, much more severe than that which preceded it, rigors occur, and the patient is much prostrated, indicating the formation of pus. After long and protracted suffering, the pus makes its way through the structures to the surface, and discharging, the pain is much modified. One or two, or four, six or eight weeks, may be consumed in this process, and sometimes resulting in most serious structural lesion of the bone.

DIAGNOSIS.—We diagnose periostitis, by the deep seated aching or tearing pain, increased when pressure is made directly upon the bone. The surface has usually a smooth, glistening appearance, that is unnatural in other cases. Further than this, the diagnosis must be made by exclusion. The

deep throbbing pain, extremely severe, with rigors or chilly sensations, determines the formation of pus.

PROGNOSIS.—The prognosis is favorable, except in cases where it is the result of secondary syphilis, and the general health is much broken.

POST-MORTEM EXAMINATION.—The periosteum is found thickened, and reddened in the early stage of the disease, and there is more or less effusion into the superimposed tissue, and sometimes beneath the membrane, the bone sharing in the inflammation to some extent. In a further advanced stage we find the membrane softened, with purulent formation on its free surface, and involving the adjacent tissue; or, it is separated from the bone by purulent formation, and in some cases there is commencing caries, or, in others, death of a considerable portion of the bone. Advancing further, we simply find evidence of disease of the bone, which becomes the permanent disease.

TREATMENT.—If there is fever, give the patient the special sedatives as heretofore recommended, and a diaphoretic and diuretic. The *Asclepias* or *Eupatorium* will answer a good purpose as a diaphoretic, and may be aided by the Diaphoretic Powder of the Dispensatory; the diuretic should be Acetate or Citrate of Potassa. To favor the action of the diaphoretic, and for its soothing influence upon the inflamed part, we would use the warm bath, or the vapor bath, and continue it for an hour or two. I have obtained the most marked benefit from the warm bath, as hot as the patient could bear it, continued for four or five hours. If there is much derangement of the digestive organs give an emetic and follow with the *Podophyllin* Pill. If there are any symptoms of rheumatism, the Tincture of *Macrotys*, with one drachm of Iodide of Potassium, in the twenty-four hours, will be beneficial.

If it is caused by secondary syphilis, I order, *R*, *Podophyllin*, gr. viij; *Asclepin*, gr. xx; Extract of *Conium*, ʒss; Extract of *Hyoscyamus*, ʒj; *M.*; and make thirty pills, of which one may be taken every three hours, until they operate freely, and repeated daily; associated with this I should give an infusion of *Asclepias* or other diaphoretic freely, use the warm or vapor bath, and a solution of Acetate of Potassa, to the extent of three drachms of the salt daily. To the part affected, I have never seen a better application than equal

parts of the Extracts of Conium and Belladonna, softened with Tincture of Aconite, so as to spread freely on leather; as the disease progresses the strength should be supported by the bitter tonics and Iron, a free use of stimulants, and rich animal broths, with such other food as the patient can take.

As a local application, the one above named will be found useful in many cases. A poultice or fomentation of a decoction of Poppy-heads, or Hops, or the Polygonum or Stramonium, will sometimes answer a good purpose. At other times these seem to increase the pain, and we have to resort to cold applications. Leeches applied to the part sometimes give marked relief, as do cups to the parts adjacent to that affected. In some cases the pain was so excessive that I found it advisable to make a free incision through the membrane, though in those the bone was superficial. When pus has formed, there is no necessity of waiting for it to point, in fact, in a majority of cases it would be bad practice to do so, an incision should be carried down to the part affected, when frequently with the escape of a small portion of pus, the pain is greatly mitigated. If after this the inflammation continues, it will have to be treated as for disease of the bone.

OSTEITIS.

Inflammation of the bone occurs most frequently in early life, as at that time the osseous tissue is very vascular, whilst at a later period the vessels become smaller, and many of them disappear. It most frequently attacks the spongy tissue, though sometimes the more compact, in the first case resulting in ulceration, in the second frequently causing necrosis. It may result from injury, or from cold, and is most frequently met with in persons of a syphilitic, strumous, or rheumatic constitution. It may be acute or chronic.

SYMPTOMS.—The symptoms bear a very close resemblance to periostitis, which increasing for two or three or more days, becomes an intense boring or tearing pain, most exquisite and agonizing in its character. Very soon the superimposed structures are involved, becoming hard, swollen, and of a tense shining appearance, with a slight reddish blush, and sometimes pitting on pressure. The pain is increased by a sudden movement or jar, or by the slightest pressure on the

part. This pain continues without intermission, being greatly increased at night, and by sudden changes of temperature; the soft parts become more and more involved, and at last suppurate, the event being announced by throbbing pain, and the accession of rigors. The constitutional symptoms are usually severe, the disease being ushered in by a chill or rigor, which is followed by high fever, and an arrest of the secretions.

The acute disease will usually run its course in from one to three weeks, giving rise to serious structural changes, as softening, caries and necrosis, unless resolution is effected by early treatment. When it terminates as above named, it is extremely tedious, and involves frequently the performance of important operations for the removal of the diseased structure, and in some cases the removal of the part.

In *chronic osteitis*, the disease comes on slowly, and is not attended by the same constitutional disturbance. The pain is deep seated and circumscribed, and of an aching or tearing character. It is usually worse at night and during sudden changes of temperature; if the inflammation is deep seated in the bone, as next the medullary canal, or the center of the cancellous structure of the extremities of long bones, there may be but little evidence of disease externally, except a very slight puffiness, and the peculiar shining appearance of the skin. In other cases, where the inflammation is superficial, the soft parts upon it become swollen, or at least participate in the disease to the extent of suppuration. As the disease progresses, more or less derangement of the general health obtains,—the appetite becomes impaired, there is loss of flesh and strength, the bowels are irregular, the skin harsh and dry, and the patient has a peculiar cachectic appearance. In its later stages, there are occasionally marked hectic fever and night sweats.

DIAGNOSIS.—As before remarked it is impossible to determine between osteitis and periostitis, but as the treatment is similar, there is no special necessity for making the distinction. Chronic osteitis may usually be known by the deep seated and tensive pain, enlargement of the bone, and peculiar tense glistening appearance of the skin.

PROGNOSIS.—Though rarely fatal, the disease does not usually terminate as favorably as we could desire. Going on to suppuration we find more or less of the bone destroyed, and as it

takes so long a period for the debris of devitalized bone to be removed, festulous pipes are formed through the soft structure to the seat of the disease; through them pus with bony debris is constantly discharged, keeping up a continuous irritation not only of the soft tissues, but of the bone itself. Escaping with difficulty, the material may by its simple presence give rise to an irritation that will keep up caries; or, from the change in the adjacent structure, ulceration of the bone may go on; or, parts of the bone may have their vitality destroyed and separating from it, forming *sequestra*, which will continue the irritation and discharge by their simple presence. These further changes properly fall in the province of surgery, and need not be described here.

TREATMENT.—In no respect will the treatment in cases of acute osteitis differ from that of periostitis. It must, however, be prompt, to be successful. I am a strong believer in the efficiency of the warm bath, or vapor bath, and diaphoretics, and the Podophyllin, as in the formula given under the head of periostitis. If these means are persistently applied, I am satisfied that in a considerable proportion of cases, resolution may be effected. If the disease continues there is but one mode of relieving the intense suffering, and that is, to make a free incision down to the diseased part.

In chronic osteitis we rely principally on alteratives and tonics internally, and counter-irritation to or as near as possible to the seat of the disease. The Compound Tincture of *Corydalis*, with Iodide of Potassium, or Compound Syrup of *Stillingia* with the same, are very efficient. Using the last, I would recommend the Podophyllin Pill last named, to the extent of producing one or two free evacuations from the bowels daily. Associated with these, it is well to use a gentle bitter tonic, as the *Hydrastis*, *Cornus*, etc., and in some cases combine it with a proportion of wine. If the patient is feeble, a reasonable amount of stimulus may be ordered, ale or porter being the best. Special attention should be paid to the skin, the warm bath being used once or twice a week, and the salt water sponge bath with brisk friction daily. The diet should be nutritious, and to a considerable extent of animal food.

Of local applications, we may use the irritating plaster, or painting with Iodine, or the Belladonna and Conium plaster mentioned on a preceding page. Each of these measures gives relief in some cases, but fails in others. Emollient poultices

are sometimes useful, as a decoction of Stramonium, Cornus, or Conium, thickened with Wheat-bran, or the simple poultices of Elm, Flaxseed, etc. Sometimes counter-irritation near the affected part, when it is small and superficial, answers a good purpose. If these means fail, an incision should be carried down to the diseased part, and if deep seated within the bone; it may be carried to the seat of purulent deposit by the small trephine.

STRUMOUS DISEASE OF THE BONES.

Tuberculous disease of the bones is not of very unfrequent occurrence, ranking about fourth in the scale of frequency of parts affected. The most common seat of the deposit is the cancellous or spongy portions of bone, being of most frequent occurrence in the vertebra, the short bones of the foot and hand, and the articular extremities of long bones. It occurs only in persons of a serofulous or tubercular diathesis, marked evidence of feeble vitality being manifest before disease of the bones commences. The deposit is the result of irritation, sometimes from cold or disease of adjacent parts, at others from injury, and it may occur as circumscribed tubercle or as serofulous infiltration.

SYMPTOMS.—Strumous disease of bones is almost always chronic, and the symptoms vary according to the seat or extent of the deposit. The patient usually complains of a dull, deep seated pain or aching, increased by sudden movement, or anything that causes a strain on the part. It is sometimes but little felt in the daytime when the weather is fine, but is worse at night and when the weather is changeable. If the disease is located in the back, the patient will complain of the back ache, and will relieve the part as much as possible by position. If of other parts slight enlargement will be noticed, and the pain is circumscribed; there will also be, to some extent, that peculiar white glistening appearance of the skin which is so prominent a feature in the next stage. Sooner or later, the material will commence to break down, and determination of blood, and a low form of inflammation will be set up. Now the external tissues, in the case of the bones of the extremities, become swollen and hard, the pain increases and becomes tensive, tearing or pulsating. The bone seems to be much

much enlarged, and the pain is increased by movement or direct pressure upon it. The part has a peculiar, blanched, smooth and glistening appearance that is peculiar to this disease and strumous disease of the joints. Finally, suppuration results, the pus working its way to the surface being discharged through one or more openings. It is not generally laudable pus, but a watery material, with more or less bony debris, and small flocculi of coagulable lymph or tubercular deposit. From this forward, we have a case of caries, ulceration of the bone, or necrosis. If disease of the bodies of the vertebra has progressed thus far, it may result in the formation of abscess, as in the case of psoas abscess from disease of the upper lumbar or lower dorsal vertebra; or if, as is sometimes the case, the material is re-absorbed, curvature of the spine, from loss of substance of the bodies of the vertebra takes place, with sometimes paralysis from pressure thus induced, or from disease of the spinal cord set up by disease of the vertebra.

DIAGNOSIS.—In nearly all cases of strumous disease of the bones, there will be evidence of this diathesis so plainly marked that it will not be easily misunderstood. Then the slow progress of the disease, evidently confined to the bone, and presenting none of the symptoms of malignant disease or of exostosis, and the blanched glistening appearance of the surface, is usually sufficient.

PROGNOSIS.—In some cases, tubercles are deposited in bones, and in the course of time are partially absorbed, or so changed as to render them innocuous. Most generally they run the course laid down, the symptoms being more or less severe according to the part affected. In some cases it is hardly possible for the patient to live through the prolonged suffering and loss of rest, and the exhausting discharge; but in others they pass through it with little difficulty. It almost always results in more or less deformity, and very frequently demands operative interference.

POST-MORTEM EXAMINATION,—In cases of death from this disease, the bones affected are usually severely diseased. They will be found enlarged, softened, and more or less infiltrated, though the external shell may be somewhat compact. One or more fistulous openings or *cloaca* pass through this to an internal cavity, which is ragged, and contains more or less bony and strumous debris. Sometimes a great part of the structure of the bone is removed, nothing but a simple shell being left.

TREATMENT.—In the treatment of this affection, our first endeavor is to so improve the general health as to stop the deposit of this material or the progress of strumous osteitis. This is a work of difficulty, but is yet feasible in many cases. I usually put my patients on the use of small doses of the saline diuretics, as the Acetate and Citrate of Potassa, with an alterative and tonic combined, as \mathcal{R} , Podophyllin, gr. x; Extract of Conium, 3ss; Extract of Nux Vomica, gr. iij; Hydrastin, Quinia, āā, 3j; M., and make three-grain pills, of which one may be taken every three or four hours or two three times a day. I give the above simply as an example of a combination of remedies that will set the digestive apparatus actively at work, and while promoting excretion, will cause better digestion and assimilation. Usually some preparation of Iron is necessary, and I have found none better than the Carbonate in Catawba Wine. The surface should be bathed every second day with salt water, and the body dried with a coarse towel, brisk friction being used to bring a glow to the surface. A nutritious diet, consisting largely of animal food, and fatty matters, should be allowed, and plenty of exercise in the open air enjoined if it can be taken without inducing local inflammation. Usually the part will have to be kept so quiet, that if the patient is placed by the window where the sunlight can play freely, or carried out in the open air, it will be as much as can be done.

As regards the local treatment, we may employ any of the means heretofore named that may seem applicable to the case. The irritating plaster is sometimes of imminent service, as in cases of disease of the vertebra; frequently it is not necessary to carry it to suppuration, but in severe cases its greatest influence will not be obtained short of that. A very valuable application is formed of equal parts of powdered Podophyllin and Thuga Occidentalis, or Arbor-Vitæ, made into a poultice with warm Milk; it may be used at any point. The most essential part of the treatment is obtaining perfect rest of the part affected, and this can only be done in many cases by the use of splints and other surgical appliances.

DISEASES OF THE JOINTS.

I propose to give under this head a short sketch of the prominent diseases of the articulations, with the medical

treatment necessary, referring to the more extensive works on surgery for their full description. I deem this necessary, as the practitioner is constantly meeting with such cases, and frequently has not at command works that give the desired information. We have already seen that rheumatism may give rise to very serious affections of the articulations, especially the chronic form of the disease; and we will find in practice that it is sometimes difficult to make the diagnosis between joint disease from rheumatism and from other causes. We have to notice but one acute disease, *synovitis*, and will group all the others together under the heading of chronic disease of the joints.

ACUTE SYNOVITIS.

Acute inflammation of the synovial membrane of a joint is serious in proportion to its size, in the larger articulations as the knee, ankle, wrist and elbow, giving rise to very serious constitutional disturbance. It usually has its origin from an injury, especially from a penetrating wound of the joint; but is sometimes the result of cold, or of cold following a slight injury.

SYMPTOMS.—Usually the first evidence of the disease is a feeling of stiffness and soreness of the joint, with tearing pain when it is suddenly moved or twisted. In the course of one or two days a violent inflammation is lit up, generally ushered in by a marked chill or rigor, which is followed by febrile reaction. The fever at first is usually high, the pulse frequent and hard, the skin hot and dry, the tongue coated white, the appetite gone, bowels constipated, urine scanty and high-colored, pain in the head and back, and great irritability and restlessness. Occasionally the local inflammation is very acute, with comparatively little constitutional disturbance. Usually the more acute constitutional symptoms subside in three or four days, the fever becoming remittent in character, or replaced by hectic fever in the latter stages.

With the commencement of the inflammation the joint swells rapidly, and in the course of two or three days becomes distended to a greater extent than would be deemed possible. It is usually very red and hot, the heat and redness extending for some distance above and below the articulation. The pain is intense during its entire progress, tensive, throbbing, tear-

ing and lancinating, and at times so severe that the patient cries out with agony. The part is usually exquisitely tender, the slightest pressure or motion greatly aggravating the suffering. If permitted we readily determine that the swelling is consequent upon the distension of the synovial membrane.

The disease continuing, effusion of plastic lymph occurs within the synovial membrane, which sometimes becomes organized, forming adhesions, but more frequently breaks down, forming flocculi in the synovia, or is changed into pus; or the synovial membrane becomes thickened and rough, secreting a viscid synovia, or semi-purulent material. In some cases the disease extends to the articular cartilages, which become softened and eroded, so as to expose the bone, giving rise to osteitis, and all the results that follow it. These diseased conditions most usually follow injuries of the joints, but may sometimes result from the inflammation produced by cold. The symptoms are such as might be expected from the nature of the lesion. If the joint is large, as of the knee, ankle, elbow or wrist, there is great prostration with hectic fever, night sweats, and their attendant symptoms. It will sometimes run its course rapidly, two, three or four weeks being sufficient to cause the grave changes named, in other cases it will require as many months.

DIAGNOSIS.—In superficial joints the character of the disease may be determined by its sudden accession and the marked heat, redness and swelling, and severe tensive and twisting pain. In the hip and shoulder joints, it is not so easy to determine distension of the synovial membrane, yet careful examination in the one case, by the side of the trochanter major and below Poupert's ligament, and the other in the inside, and each side of the deltoid, will likely determine synovial fluctuation. The more advanced stages may be determined to a great extent by the symptoms already named.

PROGNOSIS.—In almost all cases except those resulting from injury, resolution may be effected without injury to the structures. When caused by injury, this result is more difficult to attain, but may be accomplished in a majority of cases.

POST-MORTEM EXAMINATION. — In the early stages of the disease the synovial membrane shows a slight reddish-blush, and the vessels passing to it are seen to be enlarged; there is a greatly increased secretion of synovia, sometimes nearly

natural, but more frequently yellowish and viscid. Progressing beyond this, almost every stage of destruction is noticed, the synovial membrane being thickened, or in some cases softened; more or less flocculent material in the synovia, which is turbid and opaque, or in some cases purulent; the cartilages are eroded or destroyed, and the bone diseased to a greater or less extent.

TREATMENT.—At the commencement, before acute inflammation has sprung up, there being the feeling of soreness and stiffness first mentioned, I should give the patient a brisk purgative of Compound Powder of Jalap and Senna, and Bitartrate of Potassa, following it with a diaphoretic of equal parts of Essl. Tincture of Asclepias and Tincture of Serpentaria, in teaspoonful doses, or the Diaphoretic Powder in doses of ten grains in some warm infusion. With this, I should administer a full dose of Opium at bed time, and repeat it sufficiently often to keep down irritation. Locally, the use of cups and scarification a short distance from the joints, and strapping with Belladonna plaster, or, if this can not be obtained, common Adhesive plaster will answer a better purpose than anything else. Perfect rest must be obtained, and if this can not be accomplished otherwise, a splint should be applied. It seems to me to be the greatest folly to permit a person to use an injured joint, even to the slightest extent, until after all danger of inflammation has passed.

If the inflammation is acute when called, we would use the cathartic as before, and to assist the action of the diaphoretic, use the warm or vapor bath thoroughly. In addition, a solution of Acetate of Potassa will be found to assist in dispersing the inflammation. I have great faith in the action of Opium in these cases after secretion is established, giving it in doses of one or two grains sufficiently often to quiet the pain. It is most markedly antiphlogistic in its action, and at the same time gives ease when otherwise the pain would be constant and intensely severe. By the second or third day, the secretions being free, we may employ Quinia in some cases with marked advantage. It seems to quiet irritation, favors a normal circulation of the blood, and though in no respect narcotic, yet it is second to Opium in giving the patient ease.

Warm fomentations of bitter herbs or narcotics are most generally recommended as a local application, and though sometimes giving relief, I must confess that I do not like

them. Next in frequency, poultices of various kinds are used, but without any very marked benefit. The narcotics and sedatives, Belladonna, Stramonium, Opium, Aconite and Veratrum are useful remedies in many cases, quieting the local irritation, and assisting in the arrest of the inflammation. The stimulating and sedative liniments named under the head of sub-acute rheumatism, may also be used when the case progresses slowly. My plan of treatment now, is to have the joint thoroughly cupped, or if this is not convenient, leeches, at a short distance from the seat of inflammation; it should then be strapped with Belladonna plaster or common Adhesive plaster, and placed upon a splint that will not permit the slightest amount of motion. This does not seem to the patient or young practitioner like doing enough, and yet it will prove far more satisfactory than the other measures referred to. Time is required to effect resolution, and it must not be expected that this or any other means will relieve the suffering in a few hours. If the disease goes on to produce the serious structural changes named, it will have to be treated as the succeeding affections.

In some cases it will be found that the disease is not in the slightest degree mitigated by this or any other treatment; the swelling increases until it seems impossible for the joint to become larger, and the pain becomes so excruciating as to be unendurable, and the patient will pray for any relief, even death itself. We can see from all the symptoms that rapid destruction of the joint is going on, and that if relief is not soon afforded the destruction will be so great as to be irreparable, even should the patient survive. What shall we do in these cases? Authorities seem to differ, but I should incise the joint, and keep it open, until the inflammation was subdued. It is good treatment in disease of the smaller articulations, and I have been forced to adopt it in two cases of disease of the knee joint, very much against my will, but with the best of success in both instances. Dr. Cooper, of San Francisco, clearly proved that opening into joints was attended with but little danger, yet the old prejudices prevent the general adoption of his practice.

CHRONIC DISEASE OF JOINTS.

Chronic articular disease is always inflammatory at some stage, and very frequently is so at the commencement. Each of the tissues entering into its formation may be affected, but it usually commences in the synovial membrane, or in the articular extremities of the bones. The causes are various; thus, it may arise from an acute inflammation, from rheumatism, from injury, from the common causes of inflammation elsewhere, or from strumous deposit in some of the tissues entering into the formation of the articulation, or adjacent to it. Essentially chronic in its character, it sometimes comes on insidiously, and always runs its course slowly.

SYMPTOMS.—The general symptoms of chronic articular disease are: a gradual enlargement of the joint, with more or less pain, usually of a dull, aching character, but becoming more intense as the disease progresses. A feebleness of the muscles moving the part, and of the joint itself. Displacement of the bones to a greater or less extent, and deformity in consequence. In many cases the joint presents a blanched, glistening appearance, though it may be hot, and very painful; hence, the common term, *white swelling*, applied to this class of diseases. The constitutional symptoms are always very marked. As the disease advances we find the patient becoming cachectic; the appetite is poor; bowels irregular; the skin and kidneys fail to perform their functions properly, and there is marked derangement of innervation. Sometimes the effect of the local disease is so severe in the case of the larger articulations, that the patient is soon confined to his bed, from which frequently he does not get up for weeks and months. During this time very many changes take place in the disease; at times severe fever, so that it would seem impossible for the patient to live; again, marked irritation of the nervous system, the patient being extremely irritable and sensitive, and can not be moved without the greatest suffering, and resting badly at night; occasionally almost complete loss of appetite, or very feeble digestive power, being troubled with flatulence, acidity, etc.; or hectic fever of a most persistent character, with night sweats, makes its appearance, with sometimes tendency to colliquative diarrhœa. Altogether, in cases of disease of the larger articulations, there is a succession of the most adverse symptoms; one appearing when

another is removed, that renders its treatment anything but pleasant.

HYDRARTHROSIS is the most simple of these articular diseases. It occurs most frequently in the young, and is very rare after thirty. It is usually preceded by an injury, an acute inflammation, or rheumatism, from which the part seemingly recovered at the time. Sometime afterwards it is noticed that the joint is becoming enlarged, is weak, though still used, and is sometimes the seat of a dull, obscure pain. The distension is sometimes not very great, but at others the articulation is rendered a shapeless mass from the very great accumulation of synovia, which distends the joint most in the direction of the least resistance. As it continues, the areolar tissues become thickened at the parts where there is the greatest pressure. The only change observed after death is the thickening of the synovial membrane, with sometimes softening, and marked enlargement of the fringes of the alar ligaments, sometimes to such an extent that they seem to be fleshy masses.

STRUMOUS SYNOVITIS is diagnosed, according to Mr. Barwell, by the following symptoms. "The swelling is either before pain, or is discovered with the pain. Pain being a later symptom as regards visible swelling; yet when it comes on it is constant. The bones forming the articulation are blended by the swelling into one rounded shapeless mass, which overlies both parts of the joint equally, and conceals greatly or altogether the line of junction between the two bones. There is no preference of place; the swelling is equable over the whole joint. The integuments are not at all, or scarcely increased in temperature."

In STRUMOUS ARTICULAR OSTEITIS, "the first symptom is heavy dull pain with limping or other imperfection in the use of the limb; this comes on before any swelling is perceptible. The pain is generally increased in bed, and is subject to variations; sometimes quite disappearing for a time, and again returning. The swelling at first is confined to one portion of the joint; for instance, at the knee, the upper where the femur, the lower where the tibia is affected. Afterward, though the whole joint be enlarged, the tumefaction is more marked, harder and larger over the bone primarily affected, and is nearly always on one side of the joint. The division between the bones remains evident to the touch. In all but the deepest placed bones, the integuments over them are sensibly hotter."

The same author lays down the following well-marked symptoms of *caries* and *necrosis*: "In the first, during the formation of pus, the general and local symptoms increase in intensity, and continue to increase even after an external opening has been made. The sinuses are crowned with florid granulations which bleed extremely easily. They are surrounded by thin, blue, contracted skin. The pus is plentiful, thin and irritating. A probe finds the diseased bone surface with difficulty, on account of the windings of the sinus. The surface is rough, slightly yielding, and brittle, though parts give way, it gives an idea of softness. In *necrosis*, where pus forms in the soft parts, and more particularly when it has been let out, the symptoms diminish. The sinusses are crowned by florid, but not brilliant granulations, which do not bleed with extreme ease. They are surrounded by normal or slightly altered skin. The pus is not large in quantity, and is in general nearly laudable. A probe passed along a sinus to necrotic bone finds the passage tolerably straight or simple. The bone is hard, brittle, sometimes moveable. Often one may feel the probe pass through a sinuous opening (cloaca) in bone before it comes to the dead portion."

DIAGNOSIS.—The diagnosis of chronic articular disease is usually easy, when the joint is superficial; but difficult when deep seated, as in case of the hip and shoulder joints. The main features of the affection and the symptoms distinguishing different lesions have already been noticed.

PROGNOSIS.—When the synovial membrane is alone affected the prognosis is much more favorable than when the disease commences in the bone. If but little change has taken place in the structures, we may hope to arrest the disease and save the joint. In other cases we may sometimes get a useful limb, but frequently with deformity and stiffness, or ankylosis of the joint. These cases are usually tedious, and call for very great care, and the judicious application of remedies to meet the symptoms as they arise.

POST-MORTEM EXAMINATION.—Dissection reveals various structural lesions, corresponding to the symptoms during life. If the synovial membrane was alone affected, it is usually thickened, more or less rough, and in some cases changed to a pus-secreting structure; the synovia increased in quantity, may be nearly normal, or viscid, or containing flocculi and shreds of lymph, or semi-purulent, or in some cases thick and grumous.

Passing beyond this, we find the cartilages eroded or entirely destroyed, and more or less extensive caries of the bone. In articular osteitis, the bone is enlarged and carious or necrosed, with fistulous pipes passing to the surface; in some cases a considerable portion of it is broken down, the site being filled with bony debris and ill-looking pus.

TREATMENT.—When called to treat a case of chronic articular disease, our first object is to so arrange the part as to obtain most perfect rest. If of the lower extremities it will be necessary to confine the patient to the bed for a period of weeks, or in some cases from four to six months. In addition to this a splint should be carefully adapted to the part, so as to render it entirely immovable, and at the same time make sufficient extension to prevent pressure of the bones from contraction of the muscles. Though joint disease may be cured without these measures, yet it is tedious, and the suffering is frequently intense; and in many cases from want of attention to this point the joint is lost, or the disease terminates fatally.

If the patient is strong, and there seems to be irritation of and determination to the joint, we may resort to an antiphlogistic treatment: as, from catharsis, the alkaline diuretics, the warm or vapor bath with diaphoretics, etc.; but, as a general rule, no advantage will result from it. If there is fever, we remove it by the use of the special sedatives and an alkaline diuretic, the bowels being kept moderately open; and as soon as secretion is established, we may employ Opium to give the patient rest at night if the pain has been so severe as to prevent it. After this, we resort to the vegetable tonics and alteratives to keep up secretion and give tone to the digestive apparatus and entire system. I have obtained the best results from a combination of equal parts of *Alnus*, *Rumex* and *Serophularia* in infusion, giving a wineglassful four times a day, with from five to ten grains of Iodide of Potassa at each dose, and the use of the Iodine and Nux Vomica Pill heretofore named; or we may get an alterative and tonic combined, as in the formula of Nux Vomica, Hydrastin, Quinia and Podophyllin, under the head of chronic disease of the bones. With this, if the patient has no febrile action, I order Ale or Porter, or in some cases Wine, or Rye Whisky and Cod-liver Oil.

Recollect that it is not necessary to give large quantities of

medicine, nor to give it where there is no necessity for it. I have treated cases of articular disease in which for two months the patient had nothing but the last named pill to the extent of moving his bowels once or twice daily, and as much Ale as he desired to drink, and yet he was confined to his bed. I have obtained marked advantage from the use of, R, Essl. Tincture of Aselepias, 3j; Hydrochlorate of Ammonia, 3j; Simple Syrup, 3iij; M., and give in teaspoonful doses every three hours. It keeps the skin soft and pliable, urinary secretion free, and quiets many of the disagreeable nervous symptoms that are so common. If the pain is very severe and can not be controlled by local applications, we may use Opium or its preparations, but would prefer to get along without them, except as occasional remedies; the other narcotics, Hyoseyamus, Verbaseum, Belladonna and Conium, may be occasionally used, but will not be found to be generally advantageous. If the pain is severe in the afternoon and evening, especially if attended with hectic fever, we may relieve it by the administration of Quinia, Prunine or the Essl. Tincture of Euonymus. If there is a loaded tongue or foul stomach, I would use an emetic, getting its thorough action, and following with equal parts of Oxide of Zinc and Hydrastin, two grains four times a day, in pill or powder, and a solution of Acetate of Potassa. I have seen a severe hectic fever and night sweats arrested in this way when all other means had failed, and the patient regain his appetite and commence to recover, the first evidence of amendment dating from the emetic.

As regards local applications, it is sometimes desirable to use none at all, keeping the part perfectly quiet and undisturbed. In other cases the application of a plaster of Mayer's Ointment, made strictly according to the Dispensatory, will be found highly useful; or take equal parts of Rumex and Phytolacca, simmer them in Lard, express, and to each ounce, add one drachm of Venice Turpentine, and half a drachm of pulverized Camphor. These applications are the best I have ever used in cases where the disease was progressing slowly, and the part was not very painful. If painful, I use the Belladonna plaster, or other narcotic applications. When the part is tender and painful, as is frequently the case when we are first called, we may poultice it with a decoction of Cornus or Stramonium, thickened with Wheat-

bran, and when the irritation has subsided, resort to the other applications named.

In hydrarthrosis or strumous synovitis, next to perfect rest we obtain the greatest advantage from straps. I am accustomed to use any medicated plaster that I think indicated for this purpose, as almost all of them are sufficiently adhesive for our use. I have employed the irritating plaster for this purpose, spreading it on strips of muslin an inch wide, warming and applying so as to make a continuous and even compression. The common strengthening plaster answers well; and Mayer's Ointment, made according to the formula, with Gum Turpentine is excellent. If these are not obtainable, use the common adhesive straps, applying as firmly as the patient can bear without increasing the pain.

In hydrarthrosis it is proposed by sub-cutaneous incision to let the fluid escape into the areolar tissues, from which it will be absorbed, which is doubtless good practice. In other cases, the majority have decided that it is not proper to open the joints in any case, but the minority have shown in numerous instances that it is not only feasible and unattended with danger, but is often the only mode of procedure that will save the structure of the joint. This is entirely a surgical question; and for its solution, as well as the further surgical treatment, the reader is referred to the surgical works of the day. Barwell, Dr. Bauer, and Dr. Lewis Sayre, being the authorities that I should prefer to follow.

CHAPTER VII.

DISEASES OF THE NERVOUS SYSTEM.

In addition to the important part occupied in all diseases by derangements of innervation, we find that the nervous system is subject to many diseases, some of which are among the most severe that the system is liable to, and others are especially intractable to medicine. We have to recognize three distinct sources of nervous supply: the brain, the spinal cord, and sympathetic ganglia, each of which has a special purpose to subserve, and is more or less independent of the other. The brain is the organ of the mind, and furnishes the force by which a very large portion of the body is brought under the influence of the will. We may consider it as entirely the organ of volition, as in many of the lower species it does not exist at all, and even in some of the vertebrata is rudimental, and in none does it correspond with the need of innervation. The expansion of the cerebrum is especially the organ of thought, and rather detracts from than adds to the vitality of the person. The basilar portions of the brain may be considered as expansive to some extent of the spinal cord, and are eminently vital parts; the tenacity of life and power of living depending to a very considerable extent upon its development and perfect condition. While so serious a lesion as the removal of a considerable portion of the front lobes of the brain may be recovered from, the slightest injury of the sensory ganglia or medulla oblongata will cause death.

Within the spinal cord we find gray nervous matter, giving origin to nerve fibers, though surrounded by the white fibers of communication of the brain. This is the center of the reflex or excito-motory nervous force, one that plays a very important part in the living body. It carries on certain functions when the will is in abeyance, and others that are left but partially under the influence of the will. Thus the respiratory function is carried on by this system of nerves, as is also deglutition, and all of the involuntary movements. It is supposed that nerves from this source pass to every part of the

system, and exercise a very considerable controlling influence. We will find hereafter that they may take entire command of the body, the brain no longer having any or but slight control.

The sympathetic nervous system seems to preside over the functions of vegetative life, and though both ganglia and nerve fibers are very minute, they govern the most important of all functions in the body—those of digestion, assimilation, nutrition, secretion, and the circulation of the blood. Though so minute in structure, yet it is probable that there is not a space the size of a pin's head in the entire body that has not its sympathetic fibril. Wherever a blood-vessel goes, there goes a sympathetic nerve, to watch over the vital fluid, and see that it is properly applied.

These three parts are very intimately connected, the sympathetic ganglia with the spinal cord immediately posterior to them, and the spinal cord directly with the brain through fibers of communication. This connection is not marked during health, and is only developed to any considerable extent during disease. These symptoms have already been noticed, and will hereafter be seen to play a very important part in some affections.

PHRENITIS.

The brain and its membranes occupying the cavity of the cranium is subject to inflammation like all other structures. The disease may attack and be confined to the membranes of the brain, *cerebral meningitis*, or it may affect the substance of the brain itself, *cerebritis*; but very generally affects both to some extent. As it is impossible to decide during life whether the membranes or the substance of the brain is the seat of the disease, there is little use in trying to draw a distinction between the two. Phrenitis may be caused by cold, and other causes tending to produce irritation of the brain, the state of the blood, and by injuries. It is almost always acute; in fact, I doubt if we are able to recognize a chronic inflammation of this organ, unless it may be of the meninges, producing chronic hydrocephalus.

SYMPTOMS.—The invasion of the disease is indicated by a sense of fullness and pain in the head, the integuments being suffused, and sometimes a marked sense of heat. Frequently the patient complains of dullness, with confusion of ideas and

forgetfulness, and unquiet sleep. Extreme irritability and fretfulness, with indisposition to sleep, and frequent startings during rest, the cry being sharp and quick, as if terrified, are the precursory symptoms in children. The disease is usually ushered in with a marked rigor or chill, continuing for an hour or two, or sometimes for nearly a day. Following this, there is in most cases high febrile reaction, the skin is hot and flushed, the pulse frequent and hard, tongue coated white, bowels constipated, and urine scanty and high-colored. The head is turgid and hot, the eyes more prominent and suffused, the pupils contracted and fixed, and a deep seated, heavy, pulsating and tensive pain in the head.

As the disease progresses, the patient becomes more irritable and restless, the pain in the head increases, there is intolerance of light, ringing in the ears and intolerance of sound, sleeplessness and delirium. Up to the third or fourth day the fever is usually continuous, though sometimes there is a slight remission in the forenoon, and the head symptoms increase or continue without abatement. A marked change is now observed, the acute sensibility gives way to torpor, and the delirium becomes low and muttering, or is replaced by coma. The pulse becomes fuller, softer or slow, or in some cases very hard and frequent. The head and trunk is still hot, the face turgid and of a deeper color, or in some cases blanched and contracted, the pupils dilated, the extremities cool, respiration difficult and sometimes stertorous, and more or less involuntary movement and starting of the tendons. The coma gradually becomes deeper, and the insensibility more marked; all the functions are feebly performed, the patient lies on his back, slips down to the foot of the bed, grasps at imaginary objects, and thus slowly sinks. According to Copland: "In some cases, particularly those in which the cerebral substance is early and generally inflamed and turgid, instead of phrenitic delirium, an apoplectic sopor, often preceded by convulsions, quickly supervenes; with a slow pulse, stertorous, slow or labored breathing, turgid or bloated countenance, startings of the tendons, involuntary evacuations, torpor of the senses, and flaccidity of the limbs." Here the first stage is very short, or not noticed, and the disease passes rapidly to a fatal termination.

In children we frequently find inflammation of the brain making its appearance during the progress of other diseases.

The head becomes hot, the face turgid, the pupils contracted, with great restlessness and constant movement of the head. Though not very marked on account of age, the child is evidently delirious, and the frequent movement of the head, and putting the hands up to it, shows that it suffers pain. In other cases the acute stage has passed without notice, the face is blached and contracted, or white and puffy, the pulse is small and very frequent, the extremities cool, bowels loose, the operations being unnatural and offensive, there is continued movement of the head and restlessness, or a deep stupor or coma. Sometimes the symptoms will continue for three or four days, but at other times the disease will terminate fatally within forty-eight hours.

DIAGNOSIS.—It is not difficult in the most of cases to determine the presence of phrenitis. The heat and turgidity of the face and scalp, the deep seated and tensive pain, contracted pupils, and the great irritability and restlessness, with the high grade of fever, are sufficient for the diagnosis. In those other cases in which coma, difficult respiration, full, but oppressed pulse, coldness of the extremities, dilated pupils, etc., are the attendant symptoms, the diagnosis will be very difficult, and if we can not have the previous history of the case, almost impossible.

PROGNOSIS.—In the first stage of the disease, the prognosis is usually favorable if prompt measures are adopted for the arrest of the inflammation. In the second stage the lesions are so great that we will have to be guarded in our prognosis, though a considerable number will recover.

POST-MORTEM EXAMINATION.—The membranes of the brain will be found to have been involved most frequently. The dura-mater may be injected, as may also the arachnoid in some places; there is sometimes increased quantity of fluid, but little changed or viscid, or containing flocculi of coagulable lymph, in rare cases adhesions having formed between the free surfaces. The vessels of the pia-mater may be distended, and on making an incision into the brain, if involved, it is found to present a more uniform red color than natural, and the puncta vasculosa more numerous and larger.

TREATMENT.—In the stage of active determination in the adult, we would commence the treatment by the administration of a brisk cathartic, as Compound Powder of Jalap and Senna and Bi-tartrate of Potassa, in doses of one drachm of

each in a reasonable time if it should not act. In mild cases, the hot Mustard foot bath may be thoroughly used, but in the more severe I prefer the warm bath, and the vapor bath in addition. With these we would use a diaphoretic, as an infusion of *Eupatorium*, *Salvia*, etc., or of the Essl. Tincture of *Asclepias*, *Serpentaria*, *Eupatorium*, or similar remedies. To prevent determination to the head I use *Gelsemium*, giving it in doses of from twenty to forty drops of the Tincture every two or three hours until its full influence upon the system is obtained. If there are specific remedies, I should name this as one, its effects being most marked in these cases. Great care should be used, however, in its employment when the stage of excitement is passing into that of prostration, as it may so paralyze the brain as to induce fatal congestion. In the second stage of the disease, with coma and dilatation of the pupils, it must not be used.

In many cases, if we obtain the action of a cathartic, and use the hot foot bath or general bath, the diaphoretics named will induce sufficient sedation without other means. If, however, the fever should run high, there being much heat of the head, I would associate with them the special sedatives, Tinctures of *Veratrum* and *Aconite*, in doses of one drop of each, largely diluted with water, every hour. If the bowels are loose, as is sometimes the case, the general bath will have to be rendered stimulant in order to get the necessary amount of derivation, cathartics being contra-indicated. In some cases the stomach is irritable, and nausea and vomiting so constant as to prevent the administration of the proper remedies; here I should give a thorough emetic, and expect the best results from it. The emetic may also be used in cases where we have reason to suppose that the stomach is loaded with crude ingesta, or with vitiated secretions. As soon as the bowels are moved, and sometimes before, we might commence the use of the alkaline diuretics, largely diluted.

In addition to the means of derivation already named, we find it advantageous to apply cups to the neck, and even to the entire length of the spine; in some cases they should be thoroughly drawn and scarified. Some use a sinapism to the nape of the neck, but it is too feeble; if it is thought preferable a blister may be used instead of the cups. Sometimes we find it advisable to use stimulants to the entire lower extremities, as flannel cloths wrung out of hot Mustard water.

The head must be kept cool, either by the direct application of cold, or the use of evaporating lotions. I prefer warm water applied to the head with a sponge, and evaporation favored by fanning; sometimes the water may be used quite warm if feeling grateful to the patient, and allaying much of the irritability.

When the disease has passed into the second stage, our treatment will have to be changed, everything looking to depletion being discarded. A stimulant purgative, as Podophyllin with Capsicum and Extract of Hyoscyamus to the extent of producing one or two stools daily, is useful. Stimulant applications to the extremities are necessary, and counter-irritation may be applied the entire length of the spine. I use dry cups to the spine, followed by a sinapism, and wet cups to the nape of the neck. When using the cups and scarificator it is not our object to remove the blood, hence the cupping-glass is never applied after scarification. The warm water applications to the head may still be employed if there is heat, or we may add a portion of Tincture of Camphor to the water employed to render it stimulating; or in some cases a weak Tincture of Camphor may be used alone. It should always be borne in mind that there is as much danger in keeping the head too cool in this stage as in letting it remain too warm. Carbonate of Ammonia and Brandy are the only internal medicines that I find any use for, unless in some cases I give Quinia, though this usually comes in at a later stage. To an adult the dose would be from half to one tablespoonful every hour or two hours; to a child two years of age about one teaspoonful. The urinary secretion should be carefully watched, for if suppression of urine should occur, or even retention, our patient will live but a short time. If the secretion is deficient, equal parts of Sweet Spirits of Nitre and Essence of Juniper will prove useful, or a small quantity of Turpentine may be used with the Nitre.

Convalescence from this stage of phrenitis must be carefully watched. As soon as consciousness returns, we may commence the administration of Quinia, about six grains in the forenoon, to arrest the obscure remittent fever that is so generally attendant. If there are objections to continuing the Brandy, we will find the Nux Vomica and Hydrastin, as heretofore recommended, efficient substitutes. No continued mental exertion should be allowed, and excitement should be

studiously avoided, in other respects the convalescence must be managed as in other severe diseases.

ACUTE HYDROCEPHALUS.

We use this term, for the want of a better one, to distinguish a certain class of cases in which the disease of the brain is a principal lesion, though the symptoms would indicate something else. The disease is confined almost entirely to children, occurring most frequently from the ages of one to three years, and being rare after the age of twelve. It is very difficult to determine the cause, though we are of the opinion that it is frequently dependent upon irritation of the digestive apparatus, or upon any cause that will enfeeble the system. At the ages of ten or twelve it is usually brought on by over mental exertion.

SYMPTOMS.—At an early age, we find the disease commencing as an obscure remittent fever, the languor, or more properly stupor, being the most prominent symptom. The fever usually has an exacerbation in the afternoon, the child being restless and fretful at this time. Nausea and vomiting is very frequently present, especially if there is irritation of the bowels, forming one variety of cholera infantum. In a longer or shorter time, usually not more than from two to ten days, the patient becomes almost entirely unconscious, though from the occasional glance of intelligence it is not believed by the parents. Still it is restless and uneasy, turning its head from side to side, putting its hands to its head, and uttering those sharp, piercing cries indicative of pain; if the tongue can be seen, it will be found dry, its tip and edges red, and center covered with a white coat. The countenance is now pallid and pinched; the eyes want expression, and are sunk in the head, the pupils generally dilated; the head is not above normal temperature, frequently dry, although the forehead is covered with a clammy perspiration. If there was not diarrhœa at the commencement, there is now, the stools being of a dirty-yellowish or greenish color, mixed with slimy matter and having an offensive odor.

A very common grouping of symptoms is thus reported in a clinical case by Dr. Bennet: "Unconsciousness of surrounding objects, not recognizing even her mother; pupils not con-

tractile to light; slight strabismus of right eye; frequently puts her hands to the head, which is rolled about uneasily; continual grinding of the teeth, low moaning, and occasional muttering. Tip of tongue, which is all that can be seen, very dry and of a scarlet color; loss of appetite; constant thirst; vomiting; involuntary discharge of feces and urine; on pressing the abdomen uneasiness evidently experienced, and moaning increased; skin hot and dry; no eruption; a small abscess at the back of the neck, with a sanious discharge; action of the heart feeble and fluttering; pulse 140, small, and occasionally intermittent. Breathing short and hurried; no rales." These symptoms were developed in a child aged six, commencing fourteen days previously with diarrhœa.

In older children the first symptoms will be a more or less severe headache, with intellectual stupor, the child being restless and uneasy, and passing bad nights; an obscure fever may be recognized in the after part of the day, the skin being dry and husky, and the pulse frequent and hard. For days, and even for two or three weeks, the symptoms continue in this way, the child being occasionally better for a few hours or sometimes for a day or two. Suddenly the pain in the head becomes intense; the face is pinched and expressive of great suffering; the tongue is red at its tip and edges, dry, and its center covered with a white coat; the bowels constipated, or there is diarrhœa; urine scanty; the pupils dilated, and not movable on exposure to light. The child does not like to be disturbed, is constantly dozing, though its nights are restless. The pulse may be either frequent and sharp, or in some cases slow and feeble. Very frequently there is nausea and vomiting, sometimes very persistent and intractable. These symptoms becoming very severe, deep coma results, from which the child never recovers, but two or three days elapsing from its accession until the fatal termination.

DIAGNOSIS.—I diagnose this disease by the pinched expression of the countenance, every part seeming to be contracted, the dilatation of the pupil, the stupor and at the same time restlessness of the patient. These symptoms may be confounded with the second stage of inflammation of the brain, but the prior symptoms are usually sufficient for the diagnosis.

PROGNOSIS.—It is very difficult to so describe this disease that the reader may determine which cases will recover, and which will unavoidably prove fatal. Usually, if the child is

still conscious, and there is not such marked contraction of the countenance as to render it hippocratic, we may hope for a favorable result; if the contrary is the case, it will in all probability prove fatal.

POST-MORTEM EXAMINATION.—The lesions observed in this disease are by no means constant. In some cases there is considerable effusion into the ventricles and the cavity of the arachnoid, but in others there is very little or none. Sometimes there is evidence of determination of blood, and occasionally small patches of lymph or floeculi in the effused fluid; rarely the brain exhibits evidence of slow inflammation.

“The nature of acute hydrocephalus,” says Dr. Bennet, “has been keenly disputed, and whether it be inflammatory or non-inflammatory, and should be treated with antiphlogistics or nutrients, will be found to be discussed at great length in systematic works and numerous monographs. The fact is, that the group of symptoms indicating the occurrence of water on the brain is altogether insufficient to prove the existence of this morbid product in acute cases. What we observe are symptoms of excitement, gradually passing into those of depression, occasionally passing into paroxysms of pain, restlessness or screaming, alternating with drowsiness and coma. These symptoms are common to various lesions of the brain, and may be the result of mere congestion, or of this state terminating in effusion and frequently in exudation. Hence, why sometimes after death we find no lesion whatever, at others more or less distension of the ventricles with serum, and very commonly, in addition, exudation at the base of the cranium. In every case, the symptoms are referable not so much to one or the other of these lesions as to something which they all have in common, and this undoubtedly is more or less pressure on various portions of the brain, causing, first, irritation and then perversion of function, or so operating as to excite some parts and to depress others. In the great majority of cases, the fluid distending the ventricles is more allied to the dropsies than exudations. Nay, even when lymph is thrown out at the base of the brain, the amount of serum in the ventricles is altogether disproportioned to the quantity of coagulated fibrin deposited. Hence, I am disposed to think that even when evidence of so-called inflammation exists, still the fluid that distends the ventricles is

owing to a mechanical obstruction of the vessels, causing dropsical effusion.

TREATMENT.—The treatment will have to be much modified to suit each individual case; yet, in every one it must be decidedly stimulant and sustaining. If there is continuous nausea, with evidence of morbid accumulations, the stomach should be relieved by the administration of a prompt emetic, very marked benefit following its action. In other cases the nausea may be arrested by a sinapism over the epigastrium, and the administration of an infusion of Peach-tree bark, or Compound Powder of Rhubarb and Potassa. Injections of Salt and water, an even teaspoonful to two ounces of water, will sometimes prove very efficient in irritation of the stomach; Chloroform and Glycerin may be used for the same purpose, and may afterwards be continued in doses of five drops every hour or two, for its stimulant and at the same time soothing influence. If there is diarrhœa, it is the generally received opinion that it should be checked by the use of astringents; but this is bad practice, as almost invariably on the arrest of the discharges, the coma becomes complete, and the child dies.

Internally I usually administer, *R*, Carbonate of Ammonia, ʒj; Essl. Tincture of Asclepias, fʒss; Simple Syrup, fʒij; *M.*, and give in teaspoonful doses every two hours. Chloroform may be added to this in some cases, or it may be given with the Brandy. With the diaphoretic above named, I give Brandy to the extent of a teaspoonful every hour, to a child two or three years of age, the dose being sometimes increased and sometimes diminished. The hot Mustard foot bath will be sufficient in some cases, if thoroughly used, but if the case is severe, I prefer a tub of water as hot as the child can bear it, and rendered stimulant by the addition of Mustard or Capsicum, into which I sit the child, letting it remain from half an hour to two hours. Dry cupping to the neck, and even sometimes to the entire spine, is among our most important measures; sometimes the cups to the neck may be scarified, especially if there is much heat of the head. A sinapism to the neck and spine will sometimes answer the purpose, but is not as good as the cups, and I think not as useful as friction with strong Salt and water. If the kidneys fail to act freely I would administer an infusion of Hair-cap Moss or of Marsh-mallows, with a suitable portion of Acetate of Potassa and Sweet Spirits of Nitre.

Just as soon as a change for the better is noticed, marked by returning consciousness, less restlessness and the establishment of the secretions, we would administer Quinia and Hydrastin, one grain of the first and half a grain of the second, to a child two years old, every three hours until three doses are taken; the best time to give it being usually in the forenoon. The Brandy should not be omitted until convalescence is completely established, and with it the patient should have a nutritious diet of milk or animal broths. Usually the diarrhœa ceases with the commencing amendment; if it does not, the case may be treated as named under the head of diarrhœa and cholera infantum. In some very severe cases the Iodide of Potassium has been given with good results. Dr. Roeser reports a case in which "the child lay quite insensible, pupils fixed and dilated, complete paralysis of one side, face flushed, body bathed in perspiration, and all the other symptoms denoting the last stage of the disease. One drachm of the Iodide of Potassium was dissolved in half an ounce of water, thirty drops of this solution were given every hour in a little water; one drachm of the Iodide was at last given in twenty-four hours, and then the good effect appeared; in short, the child rapidly recovered, without any other bad effect than a crop of boils." Cold affusion has been recommended when coma was complete, but though successful cases are reported I should not like to try the remedy.

CHRONIC HYDROCEPHALUS.

Dropsy of the brain is almost exclusively a disease of childhood, and occurs most frequently before the third year. It is difficult to determine the causes that give rise to the effusion of water from the arachnoid, but as it occurs almost invariably in children of feeble vitality, and in families whose children die during infancy of acute hydrocephalus, cholera infantum, or this, we are led to believe that it depends upon hereditary debility. The exciting cause may be the exanthemata, whooping-cough, disease of the bowels, or some inflammatory disease, or it may arise from depression produced by cold and other causes.

SYMPTOMS.—The symptoms vary very greatly, the disease running a tolerably rapid course in some cases, and a very

slow one in others. The child usually complains of its head, if it can talk, or moves it from side to side, putting its hands to it frequently. The face is pallid and contracted, or in some cases puffy and without expression; the circulation is feeble, the extremities being cold, and the surface easily chilled; the appetite is irregular, sometimes good, at others very poor, and digestion seems to be feeble; the bowels are torpid and constipated, though sometimes irregular. As the disease progresses, we notice that the child is very stupid, and that at times it has difficulty in controlling the voluntary muscles; there may be temporary or permanent strabismus, and an involuntary rolling about of the eyes, with a dilated and fixed pupil.

Occasionally we observe a marked irritability of the stomach that is with difficulty controlled; and in some cases an extreme irritability and restlessness, though the intellectual functions are greatly impaired. As the disease progresses the torpor becomes deeper, and the child does not exhibit the symptoms of pain above named. The pulse is now seen to be getting perceptibly weaker, and occasionally irregular; the hands are tremulous and unsteady, and frequently raised to the back of the head. When the child sleeps its eyes are half-open, and the eyeballs are constantly moving and usually drawn upwards. When the torpor is not so great, the child is in some cases constantly picking its nose or lips, and is extremely irritable, having paroxysms of rage from the slightest supposed offence. The disease may continue this way for months, or in some rare cases for years, finally terminating fatally by the development of some ataxic disease, or of acute hydrocephalus, or with a gradually developed marasmus.

DIAGNOSIS.—In very young children, and sometimes up to the age of three years, there will be found a perceptible enlargement and distension of the fontanelles, and separation of the sutures, and the child's head is appreciably larger. After this, we are guided entirely by the general symptoms above named.

PROGNOSIS.—The prognosis is usually unfavorable, though some cases may be cured, and in others life may be prolonged for a considerable period. Cases are recorded in which the persons lived to an adult age, and in four cases to 27, 32, 45 and 54 years.

POST-MORTEM EXAMINATION.—If the disease has been of long

duration, the bones of the cranium will be found thin and transparent, and occasionally separated from each other by very considerable intervals. The effused fluid is found in the sac of the arachnoid, and in the ventricles; if in the ventricles to a great extent, the convolutions are unfolded, and the medullary and cineritious substances can with difficulty be distinguished. The brain is often denser than usual, and is not diminished in weight.

TREATMENT.—The most successful plan of treatment in these cases is that which will to the greatest extent, increase the tone and vitality of the system, and at the same time keep the secretions free. As in the acute form of the disease, *Asclepias* and *Carbonate of Ammonia*, will frequently be all that is necessary to keep the skin and kidneys in action, and quiet irritation. As a tonic, *Quinia* and *Hydrastin* answer the best purpose, and when there is constipation of the bowels may be given with *Podophyllin*, in small doses, the combination of these remedies heretofore given may be employed. The *Collinsonia Canadensis* is a favorite remedy in my practice, especially in cases where there is irritation of the nervous system, and we may associate with it the *Ptelea*, *Cornus*, *Euonymus*, or other remedies of this class. I use them in the form of the *Essl. Tincture*, or if I prepare it myself, a saturated tincture. *Rye-Whisky* or *Cod-liver Oil* are excellent when the stomach bears them kindly, and should it reject the Oil, its place may be supplied by *Sweet Cream* or *Beef-suet*.

The child should have a daily *Salt-water bath*; sometimes the entire bath will be best, and may be used either warm or cold, the first being generally preferable, or the sponge bath may be used; in either case, it should be followed with brisk friction. The child should be taken out in the open air every day, being warmly clad in flannel. If possible it should be removed to a high locality in the country, where it can have pure air and sunshine, exercise and pure milk.

I doubt the propriety of using vesicants to the scalp, or in fact to any part of the body, as it seems to me that the irritation of the system thus induced more than balances any good that might result from it. *Croton Oil*, with *Turpentine*, ʒj to ʒss. has been used, being freely rubbed into the scalp every four hours until vesication was produced; or a liniment of *Ipecac*, as *R Ipecac, Pulv. Olei Olivæ Europ., āā, ʒij*; *Adipis Suillus*, ʒss; *M*; it should be rubbed into the scalp for fifteen

or twenty minutes, and the part then covered with flannel. Strapping the head has been recommended, as has also compression with bandages, and I can conceive cases in which this treatment might be advantageous. As a last resort, tapping has been recommended, and some cases are reported in which it was successful; carrying the matter still further, it has been proposed to inject Tincture of Iodine, fifteen minims to two ounces of water.

SPINAL MENINGITIS.

Inflammation of the meninges of the spinal column is not an uncommon disease, though sometimes from the obscurity of its symptoms it may be mistaken for other affections. It occurs in two forms, as a distinct sporadic inflammation, and as an epidemic or endemic fever which owes its origin to the spinal cord. It is in the last named cases that mistakes in diagnosis are most usually made. The causes of this affection are those which give rise to other inflammations, as cold, sudden changes of temperature, injuries, and especially a sudden chilling of the surface after active exertion. It occurs most frequently in the young and vigorous, and is very rare after middle life.

SYMPTOMS.—Spinal meningitis usually commences with a well-marked chill, lasting for several hours, though sometimes with a severe rigor of considerable duration. I have seen cases in which the chill was of twenty-four hours duration, the latter part of it being alternated with flushes of heat. Following this, there is marked febrile reaction, with hot, dry skin, hard and frequent pulse, tongue coated white, the edges and tip being red, constipation of the bowels, and scanty and high-colored urine. The patient complains greatly of pain in the back, which is so increased on movement, that he dislikes to change his position for any purpose; though in some cases, when not so severe, they are constantly shifting their position to give them ease. By the second or third day the fever usually becomes high, the pulse running some thirty or forty beats higher than in health, the skin being very dry and constricted, and the irritability and restlessness marked. These symptoms may be so prominent as to completely overshadow the symptoms of spinal inflammation, the patient not even

complaining of the pain, unless his attention is directly called to it. It will be noticed, however, that the slightest movement or changing the position of the body gives rise to pain, and when the attention is thus drawn to it the soreness of the spine will be continually noticed. Deep pressure usually elicits tenderness, and sometimes the sensibility is so exquisite that the patient can not bear to be touched.

As the disease progresses, the fever assumes an irritative or typhoid type. The tongue soon becomes brown, and sordes appear on the teeth. Typhomania occurs about the sixth or seventh day, and is frequently attended with looseness of the bowels. Sometimes there is marked irritation of the brain and delirium, at others a stupor which soon passes into deep coma. As the local disease progresses, it is found that the lower extremities are subject to involuntary movement, and that the patient has but partial command over them; and that the bladder and rectum is evacuated without the knowledge of the patient, or there is retention of urine without the power of discharging it. At last, in severe cases, paralysis of the part below the seat of inflammation is complete. The fever is usually continued, though sometimes remittent, and is invariably ataxic, presenting well-marked typhoid symptoms, with the exception of diarrhœa, by the tenth to the twelfth day. It is usually protracted, lasting from two to eight or ten weeks.

DIAGNOSIS.—We diagnose inflammation of the spinal cord by the marked tenderness of the spine and inability to move, the constant pain in the back with the severe attendant fever. It is almost impossible to overlook these local symptoms, and yet in many cases they have been disregarded, to the great detriment of the patient.

PROGNOSIS.—The prognosis is usually favorable if treatment is commenced in time, but is unfavorable after it has made progress for several days, in many cases terminating fatally, or in paralysis.

POST-MORTEM EXAMINATION.—In some cases there is marked evidence of determination to the membranes and enlargement of the vessels. Sometimes the membranes are thickened, and fragments of organized lymph on the free surface; there may also be flocculi in the fluid of the spinal cord, which is increased in quantity. In other cases the disease seems to be confined to the pia-mater and the substance of the cord, the

former being slightly reddened, and sometimes thickened, and the latter softened, sometimes so much as to have lost all traces of organization.

TREATMENT.—In many cases it will be advantageous to commence the treatment with an emetic, especially if, as in some cases, there are symptoms of morbid accumulations or nausea. Following this, I should use the warm bath for an hour or two, or the vapor bath; or if the skin was hot, I should not hesitate to resort to the wet sheet pack. The special sedatives may be given from the first, Tinctures of Aconite and Veratrum being the agents selected, and given in small doses and frequently repeated, as heretofore recommended; Tincture of Gelseminum may be used in full doses until its specific influence is produced, as its action in preventing determination to the nervous centers is more marked than any other agent. Associated with these remedies, we would direct wet cups to the spine, followed by hot fomentations of Hops or Stramonium, or in some cases rubefacient applications, as Mustard or the stimulating liniments.

We will usually have to continue the above measures for two or three days, and sometimes longer, before any very perceptible influence is produced. We may add to the treatment named, a solution of the alkaline diuretics about this time, and may also commence the administration of Quinia. The treatment would now be the special sedatives to the extent of controlling the pulse. The Tincture of Gelseminum in small doses, with a diaphoretic, as the *Asclepias*, a solution of the alkaline diuretics, and Quinia and Hydrastin in the forenoon, the dose being proportioned to the age and condition of the patient. The frequent use of the sponge bath gives the patient great relief, and aids the action of our remedies. The bowels should be kept in a soluble condition by the use of some mild cathartic; I prefer Podophyllin thoroughly triturated with twenty times its weight of white Sugar, and with the addition of Cloves or Ginger to prevent its griping. If the patient seems much debilitated, as is frequently the case, Brandy or Rye Whisky should be used to such an extent as to give the necessary stimulation, but not to overcome the effects of the sedatives.

Quinia has a very singular influence in some cases; if given in large doses it produces marked sedation and exhaustion, and if continued this way for a few days, it may be followed

by an irritative fever, with sharp, quick pulse and dry skin. For an adult, from six to ten grains daily is as much as will generally be of advantage; and a child of ten years may usually take from four to six grains. Opium may be given with advantage after secretion is established; in children I use the Compound Powder of Ipecac and Opium. The cups to the back may be repeated two or three times, or after their first use we may continue the stimulant applications, I am impressed with the opinion that we will find the wet bandage a most efficient application in many cases, and that it may advantageously take the place of stimulant applications. Further than this, the patient will have to be managed as in continued fever, the strength being supported with stimulants and nutritious food in the shape of milk and animal broths, and an equal circulation of the blood carefully maintained. If there is tendency to paralysis as the patient recovers the treatment hereafter named may be immediately adopted.

SPINAL IRRITATION.

Irritation of the spinal cord is met with quite frequently, and is usually associated with some chronic affection, and stands in relation to it either as cause or effect. In some of these cases there is undoubtedly a chronic inflammation, in others an irritation with determination of blood, and in another class there is feeble circulation and nutrition, the irritable action being the result. As these conditions are different, and demand different treatment, the importance of distinguishing them will be apparent.

The causes of spinal irritation are various. In some cases it results from injury, in others from cold, and in others from change in the circulating fluids. The most frequent cause is undoubtedly the extension of an irritation from some organ or part along the nerves supplying it back to the spinal cord. This most frequently occurs from parts supplied from the great sympathetic nerve, the irritation being transmitted backward to the ganglia, and thence by the fibers of communication to the spinal cord immediately back of them. Hence, the frequency with which we find spinal irritation in chronic visceral disease, especially if of long standing. As examples of this, we might enumerate irritation of the lower

lumbar region and sacral portion from disease of the genito-urinary organs, the lower dorsal in disease of the kidneys, the upper dorsal in disease of the stomach, liver and spleen, and of the cervical in disease of the heart. This is so constant that we are almost certain if we find irritation of these portions of the spinal cord, manifested by tenderness, or abnormal nervous manifestations in the sensory and motor nerves distributed from these parts, that the organs supplied from the sympathetic ganglia in front are the subject of either functional or structural disease. Indeed, it has been proposed to diagnose disease in this way, and sometimes it will direct our attention to disease of the viscera that otherwise would have been overlooked.

Not only will disease of the organs thus supplied give rise to an irritation of the spinal cord in the manner named, but the spinal irritation when once started may be sufficient to continue the disease, in spite of any treatment directed to it, and in some cases when the original disease is stopped by remedies it will reproduce it. Normal innervation is of primary importance to the healthy performance of function, hence the many functional lesions that follow irritation of one of the principal nervous centers. It is for these reasons that we are so anxious to determine the existence of spinal irritation, and to adopt measures for its relief.

SYMPTOMS.—The symptoms vary very greatly, according to the part affected, its intensity, and to the progress it has made. Usually, but a portion of the spinal cord is involved, and in such case we have the manifestation of abnormal innervation in parts supplied with nerves from that source. Thus, in spinal irritation attending uterine disease, we will find with the smallest amount of structural or functional disease the most exaggerated sufferings. It is in such cases that we have the severe dragging and bearing-down pains, the difficulty and pain in passing urine, the pains passing to the arms and simulating hip disease, and extreme restlessness and irritability witnessed in such cases. So it is in cases of dyspepsia, disease of the liver, and heart disease. We witness an exaggerated form of the disease in cases of spinal irritation induced by onanism, or in some cases the irritation induced being of the medulla oblongata, the effects will be seen in organs supplied by the pneumogastric nerve, and the first cervical sympathetic ganglia.

Dr. Tûrck, of Vienna, remarks: "If we were to attempt an illustration of our remarks as to the diagnosis, we could not take a more apt instance than that of abdominal tenderness. When it depends upon spinal irritation, it will be found that the history of the patient presents instances of her having previously suffered from *neuro-emic* affections. The affectible state of the cutaneous nerves of the abdomen is never observed to occur alone, the nerves of the abdominal viscera suffer also. The kidneys, for example, secrete less or more urine than natural; if less, the deficiency amounts occasionally to complete ischuria; if more, the urine is pale and diabetic. And so there is one or the other of the two opposite states of constipation and diarrhœa, but more usually constipation, with spasm of the colon, giving rise to colic. In the more aggravated cases, the motor nerves of the large intestines, bladder, abdominal parieties, and lower extremities, are also affected; and tympanitis, vesical paralysis, constipation and paraplegia ensue. The tenderness experienced is not simply tenderness on pressure, but it is a *tenderness to the slightest touch*, and when there is spinal tenderness, for it is not always present in these cases, the tenderness is of the same kind. The abdominal tenderness of peritoneal and visceral inflammation differs altogether from the preceding, both in its history and concomitant symptoms. It is rarely seen in neuro-emic females, except when the cause is quite manifest; as, for example, where there is chronic structural disease of the peritoneum or abdominal viscera, accompanied by inflammation, or when it appears in parturient females as a symptom of metritis. We believe the neuro-emic state is rarely coincident with structural disease within the abdomen, or terminates in it."

In gastric and hepatic disease we find the same class of symptoms, the evidence of suffering being out of proportion to the extent of functional lesion determined by close examination. Here the manifestations of the spinal disease so closely simulates dyspepsia in its various forms, that were it not for the exaggeration of the symptoms as compared with the known imperfection of the digestive process, we would be frequently mistaken. As it is, we are not only surprised to see such marked symptoms attendant upon comparatively slight derangement of digestion, but more so, perhaps, that the administration of remedies in which we had placed the greatest confidence had failed of producing any benefit. I recollect a

case of this kind, in which the patient complained of an exquisite burning in the stomach with marked tenderness on pressure over the epigastrium, with the occurrence of vomiting if much food was taken, and once or twice daily in any event, these symptoms being of seven years' standing. She had been treated for ulceration and other structural disease of the stomach without avail, and finally came into my hands. Accident more than critical examination led me to examine the spine, which was found tender on pressure through the entire dorsal region; the application of the irritating plaster to the spine cured the patient in six weeks.

Functional heart disease is not of unfrequent occurrence from this cause, and in some cases is so severe as to endanger life. The spinal irritation in these cases is of the cervical region. The lungs may also be implicated in the same manner, giving rise to cough, difficulty of breathing, and expectoration. The organs of special sense are intimately associated with the upper cervical portion of the spinal cord, and I am satisfied that a principal reason of the perversity of some of them will be found in spinal irritation. Why do we use counter-irritation to the back of the neck in disease of the eyes and ears? Because it answers a better purpose there than any where else, and it does this, as we believe, for the reasons stated.

DIAGNOSIS.—The diagnosis of spinal irritation is easy, when we are led to believe that it exists from the disproportion between the apparent symptoms and the real evidences of disease, and when on examination we find tenderness on pressure over the spine. In other cases, the similarity of the symptoms to acute, and more frequently chronic inflammation of organs, and the absence of physical signs of such disease, will be our guide. The case will frequently have to be watched for several days before an opinion can be given.

PROGNOSIS.—The prognosis is usually favorable, yet we occasionally find cases in which it is impossible to reach the disease.

TREATMENT.—In cases in which there is decided determination of blood to the spinal cord, I should apply the irritating plaster, and continue it so as to produce irritation but not suppuration; in some cases the suppurative action is beneficial. Associated with this, we might employ the Tincture of *Gelseminum*, Tincture of *Maerotys* and Tincture of *Colehicium*,

equal parts of each in doses of half a teaspoonful every four hours, with Iodide of Potassium, and some vegetable alterative, as the Compound Tincture of Corydalis, or Compound Syrup of Stillingia. In some cases, better results will follow a solution of Acetate of Potassa with very small doses of Tincture of Aconite.

If it should be judged from the torpor of the parts to which spinal nerves are distributed, and especially from languid circulation in the parts, that there is congestion of the spinal cord, a different treatment will be advisable. Here, friction to the spine with the use of salt water will be better than counter-irritation, and in place of the remedies above named, I would use Nux Vomica, Quinia, Belladonna, Staphisgria, Rhus Toxicodendron, or Ergot, as was indicated by the individual case. The pill of Nux Vomica, Quinia, Hydrastin and Podophyllin presents a very good combination.

In the last case, when dependent upon feeble nutrition, we may use stimulant friction to the spine, and when it seems to be the only part of the body so affected, counter-irritation may be used to parts adjacent. Bromide of Ammonium, Carbonate and Hydrochlorate of Ammonia, the Hypophosphites, Cod-liver Oil; Quinia, Nux Vomica, and the bitter tonics, are valuable remedies. I like the action of the Collinsonia in these cases, and have used with advantage the Mitchella, the Senicio, and Santonine will be found useful in cases of irritation of the lumbar spine, with disease of the urinary organs.

In addition to the means above named, we usually adopt the treatment appropriate for the visceral disease. All internal remedies should be given in small doses and continuously, giving plenty of time for their effects to become manifest before changing them for others. No plan of treatment will be successful unless the hygienic condition of the patient is attended to; if possible she should have pure air, out-door exercise, a nutritious diet, and agreeable mental occupation; these in many cases are as important as the appropriate remedies.

CURVATURE OF THE SPINE.

Curvature of the spine occurs most generally in the young, and is rare after the age of twenty-five. In all cases it is the result of enfeebled vitality, either congenital or induced by

destitution or over-mental exertion or sexual excitement. In some cases this manifests itself in the form of scrofula or tuberculosis, and in such case we may expect disease of the bones. Two varieties of curvature are met with, lateral and posterior, both occurring most frequently in the dorsal region, though at last always compensated by curvature of the lumbar and cervical portions.

Lateral curvature may be dependent upon affections of the muscles, as hypertrophy, atrophy, spasmodic contraction or inflammation; upon general debility, the body not being sufficiently strong to support itself in the erect position; upon obliquity of the pelvis, the result of injury or disease of the lower extremities; or upon altered capacity of one side of the chest; upon rachitis or softening of the bones, or defective development of the vertebra. Posterior curvature is most generally dependent upon disease of the bodies of the vertebra, though in some cases it undoubtedly results from debility, and the habit of throwing the head and shoulders forward in sitting and walking; in the last case being very mild. Practically we have to study the case: first, with reference as to whether its depends upon disease of the muscles or bones; second, whether its continuance depends upon determination of blood or upon feeble circulation; and third, as regards the general health, whether there is simple debility from imperfect digestion and assimilation, or a scrofulous or tubercular cachexia. The success of the treatment will depend upon accurate diagnosis as regards these points, as in many respects it must differ in different cases.

SYMPTOMS.—The symptoms of curvature of the spine vary greatly in different cases, in some being very marked, in others obscure. Usually the child's health is noticed to be feeble, its appetite variable, and digestion and assimilation imperfect. It may or may not complain of pain in the back, but it will be noticed that the back is weak and that it makes unusual efforts to rest it. In lateral curvature, the disease is most usually dependent upon local debility of the erector muscles of the spine, and there is frequently no complaint, except from weakness of the back, and the symptoms of general debility above named. If partially owing to spasmodic action, pain would be a constant attendant, though usually there would be no tenderness on pressure. If the result of disease of the bones, as in most cases of posterior curvature, in

addition to more or less pain, there will be tenderness on deep pressure. In these cases the disease of the bone causes irritation of the spinal cord, and we have the symptoms heretofore named.

DIAGNOSIS.—An examination of the spine will determine the existence of curvature, and it is usually not difficult to determine which is the primary and which is the curvature of compensation. In almost all cases of lateral curvature we will find the fault to exist principally in the muscles at first, though as the disease progresses irritation is frequently developed, resulting in spasmodic action, and finally in atrophy or softening of the bones; hence spinal tenderness will usually result in the latter part of the disease, and not at its commencement. In posterior curvature, we sometimes have the most marked evidence of scrofulous cachexia, and in most cases we have marked general debility. It will be recollected that the disease of the bodies of the vertebra may be a true inflammation, or result from deposit of tubercles and scrofulous material, or may be simple softening from rachitis. In the first case the pain will be marked and decided, in the second there is simple irritation and aching of the part, with tenderness on pressure; and in the last we will have the previous curvature and deformity of the legs and pelvis, in addition to the absence of pain and tenderness, to aid us in the diagnosis. Mr. Solly believed that softening of the bones might be entirely local, and might be dependent upon nervous exhaustion; in such case the symptoms would be obscure.

PROGNOSIS.—In lateral curvature a favorable prognosis may be given in many cases, the deformity being nearly entirely removed, or it may be simply arrested, the body so accommodating itself to it as to give rise to but little subsequent trouble. In posterior curvature the best result usually obtainable is to stop the disease and prevent further curvature. It is true that in some cases we may partially correct the deformity, but in a large majority the attempt is attended with injury rather than benefit. If there has been destruction of the bodies of the vertebra the best result is ankylosis of the bones and of course permanence of the curvature; and if this is prevented by instruments for extension, the life of the patient will almost surely be sacrificed.

TREATMENT.—In all forms of spinal curvature attention to

the general health is one of the most important points in the treatment. Those bitter tonics that improve the tone of the stomach, and give the patient a good appetite and power of digestion are applicable. I like the effect of the Essl. Tinctures of Hydrastis, Collinsonia, Cornus and Ptelea; but in some cases the Hydrastin and Quinia, with a small portion of Podophyllin and the Extract of Nux Vomica if there is nothing to contra-indicate it, will be found best. Iron in some form is usually necessary, and though most writers recommend the soluble preparations, I prefer the Carbonate or Phosphate. If there is disease of the bones assuming the form of softening, Phosphoric Acid has been recommended; and from the little experience I have had with it, I am inclined to believe that it will generally be found advantageous; we would commence its administration in doses of two drops of the dilute acid, four or five times a day, and increase it if deemed best.

When the symptoms would lead us to believe there was scrofulous disease of the bones the vegetable alteratives will be brought into requisition. A combination of Yellow Dock and Tag Alder, with small portions of Acetate of Potassa has answered my purpose well. The Compound Tincture of Corydalis is very efficient, and may be combined with Iodide of Potassium. If there is great irritability of the nervous system I would substitute the Bromide of Ammonium for the preparations of Potassa. These remedies should not take the place of tonics and restoratives, but should be associated with them in such manner as that normal digestion and assimilation shall be the first object in view. A nutritious and easily digested diet should be prescribed, and frequently a small amount of malt liquor is advisable. The sponge bath should be used daily, sometimes of simple water, salt and water, or stimulants, as Capsicum or Mustard, or the mineral acid baths, or of a decoction of the bitter tonics and astringents.

If there is simple loss of muscular power, as in many cases of lateral curvature, we would recommend open air exercise, and friction of the spine with cold salt water, and sometimes the use of Electricity. These are the only cases in which exercise is permissible and then it should be so regulated as not to prove exhaustive. Sir B. Brodie recommends that the muscles of the back be strengthened by climbing and other exercises, for which in delicate girls friction or shampooing for an hour or two daily might be substituted; and

the patient should lie down for a part or a whole of the time she was not engaged in exercise. Mechanical support may be used in these cases, but it should always permit free movement. If in any case there is irritation and pain, with tenderness on pressure, the child should maintain the recumbent position, and especially is this the case in posterior curvature. Rest is all-important in these cases, until the disease is entirely arrested, and though it will sometimes seem as if the child could not bear the continued confinement, we will find that it absolutely improves in every respect while maintaining the most perfect quiet. Counter-irritation is of much importance in these cases, but we must be careful not to carry it so far as to unduly irritate the nervous system, or induce debility by the excessive discharge. The irritating plaster is a favorite application, and will usually be found the best of any. It may, in severe cases, be replaced by the issue, and in others by two, three or four small setons, as common surgeons' silk, passed through a fold of the skin on each side of the spine.

In cases of disease of the bones, Dr. Pirrie remarks: "That any attempt to remove the curvature would be injudicious. Anchylosis is the only favorable termination to be hoped for, and therefore the object to be aimed at in treatment should be to place the patient under circumstances most likely to conduce to that result. With that view, it is indispensable, first to keep the patient in a recumbent position, so as to remove from the diseased parts the pressure of the superimposed weight, and to preserve the parts in a state of perfect quietude in that position; and secondly, to use all means, judicious and available in the circumstances of the case, for maintaining the general health. One particular advantage which results from preserving the parts at perfect rest in the horizontal position is that the removal of the irritation caused by the superincumbent weight from the diseased parts diminishes the danger of the formation of abscess, which is a most unpromising occurrence, and must induce the gloomiest apprehensions as to the ultimate result."

A most excellent means of attaining perfect rest is afforded by a common camp cot, with the head elevated about a foot, and covered with a soft hair mattress; two crutches softly padded, should pass from the foot up to the arm-pits, and an india-rubber webbing attached to the arms of these to support the trunk. In this apparatus there is constant gentle exten-

sion; the body is supported by the webbing, the patient lying on the back, or face downward, as seems best suited to the ease. For full description the reader would do well to consult Bigg on Deformities, the second volume containing most explicit descriptions of apparatus and well drawn wood-cuts.

APOPLEXY.

Apoplexy may occur at any age, but is much more frequent after middle life than before, and occurs more frequently in the male than in the female. It is in all cases dependent upon lesion of the brain, though this is not always manifest, and may be induced by various causes. In the severe cases there is extravasation of blood, cerebral hemorrhage, or other organic disease producing pressure; in the milder forms it may be dependent upon congestion. The fact that tonic contraction of the muscles of the neck existed in all cases has been taken as conclusive evidence that this, by preventing the free flow of the blood from the brain by the jugular veins, was the cause of the convulsions, and of the extravasation of blood afterwards found. The popular impression, and to some extent the opinion of the profession, that a condition of plethora, with a full habit of body, florid face, and short neck, was necessary to apoplexy, is incorrect, as the disease occurs quite frequently in persons the very opposite. Thus, in sixty-three cases described by M. Rachoux, ten were plethoric, twenty-three were thin, and thirty were of ordinary habit of body.

Among the causes giving rise to apoplexy we will find that diseases of the heart exercise an important influence, either sending the blood to the brain with increased force, or preventing its free return. Some authors have contended that previous disease of the blood vessels of the brain was an important element of apoplexy, and that in a majority of cases they had undergone fatty or other degeneration. The exciting causes are various, as intense emotional excitement, intemperance in eating and drinking, and long continued and exhausting mental or physical exertion. Possibly the most frequently exciting cause is undue distension of the stomach by eating, when the system has been previously

exhausted by mental exertion, or when the system is enfeebled from other causes.

SYMPTOMS.—Apoplexy may be sudden in its occurrence, or may be preceded by premonitory symptoms. In the last case, for a few hours, or even days, the patient feels an unnatural weight and tightness of the head, ringing in the ears, and occasional inability to control the voluntary muscles. These symptoms may be constant, or may last but a moment and then pass off; they are not definite, but should cause suspicion of danger of an apoplectic seizure. In other cases, the patient is suddenly attacked with dizziness and vertigo, with ringing in the ears, disordered vision, and partial or entire loss of consciousness for a few moments; afterwards he feels dull and stupid, can not arouse himself, staggers when he walks, his voice is thick and husky, and he reasons with difficulty. These symptoms occurring after a full hearty meal, or after great excitement, are indicative of a serious apoplectic attack. In other and possibly the majority of cases, there is nothing to warn the patient or friends of the approaching danger.

The attack of apoplexy is sudden, the patient losing all consciousness instantly, and falling wherever he may be situated; the countenance is livid, there is relaxation and immobility of the muscles, or a semi-rigid condition, stertorous respiration, and a slow, full and sometimes hard pulse. There is complete arrest of volition, and of the influence of the brain over the body, the patient lying in any position in which he may be placed, and only those functions, respiration and the circulation of the blood, which are dependent upon the spinal cord and sympathetic ganglia are carried on. In some cases the shock is so great that the extremities become cold and livid, and a cold, clammy perspiration breaks out over the entire surface. In other cases the attack is not so severe, there being slight spasmodic movement, and inability to swallow. In those cases in which there is a mild premonitory attack, the symptoms of cerebral disturbance continuing, we may expect the severe paroxysm with the aggravated symptoms above named, and very generally a fatal result.

The apoplectic seizure may last but a few moments in mild cases, the patient slowly recovering consciousness and power over his body; or it may be very greatly protracted, lasting for hours, or terminating in a deep coma with more or less paralysis, from which the patient slowly recovers; or the coma

deepens and he dies some days after the first attack. Paralysis is of tolerably frequent occurrence as the result of apoplexy, and most usually takes the form of paraplegia.

DIAGNOSIS.—Apoplexy is usually diagnosed with ease, when we can get the previous history of the patient. The suddenness of the attack, the person being apparently in good health, complete loss of consciousness, flushed face, stertorous respiration, complete immobility and slow full pulse, are symptoms that can not be mistaken. Complete intoxication, or what is popularly known as “dead drunk,” may be mistaken for apoplexy; the only means we have of determining the difference in some cases being the smell of liquor on the breath, and the tendency to vomit and character of the material brought up. Most generally we are able by moving the patient to elicit some sound, showing that it is not apoplexy. In concussion of the brain there is no possible means of diagnosis, except the injury of the head, and very frequently this is not perceptible, or seemingly no more than might have resulted from the fall during the apoplectic seizure; as we have to be guided entirely by the history of the case, the fact of the patient’s having received a fall or blow sufficient to have produced concussion, must be taken into consideration. It makes no difference in the treatment whether the diagnosis be made or not, but it is frequently of the greatest importance in reference to a criminal trial. Epilepsy and hysteria can not be mistaken for apoplexy, for in both there is convulsive movement, and in the first, frothing at the mouth; it is true that the coma of the second stage might sometimes be so mistaken, as might the coma following inflammation of the brain, had we not the previous symptoms to guide us.

PROGNOSIS.—Apoplexy is always a dangerous disease, though very many persons recover from a first attack. The patient may die almost immediately, or may live for two or three days, or finally die during reaction. In many cases the apoplectic seizure is followed by paralysis, usually paraplegia. We fear a fatal result when the respiration is very slow, labored and stertorous, with a weak pulse, a cold perspiration, and involuntary discharges of the fæces and urine. If the disease has continued over twenty-four hours, with continued deep coma, we have but little hopes of recovery. So, also, in cases in which the coma having partly passed off, the patient becomes delirious, and frequently puts his hand to a determinate part

of the head. The prognosis is favorable in cases in which the respiration gradually becomes less stertorous, the surface and extremities warm, and the pulse full and of normal frequency.

POST-MORTEM EXAMINATION.—In some cases no evidence of lesion can be discovered to account for the disease, unless possibly it might be an increased fullness of the vessels of the brain, and prominence of the puncta-vasculosa when incised. In a majority of cases, however, there is extravasation of blood, sometimes to an extent not greater than the size of a pea or cherry, but occasionally as much as one or two ounces. In other cases, a portion of the brain seems to be softened, and having in most cases a well defined, reddish tint, which is said to be produced by infiltration of blood. The fluid in the ventricles and cavity of the arachnoid is sometimes increased, sometimes diminished, and seems to bear no relation to the disease except in cases dying during reaction, when it is almost always increased, and prescutes evidence of inflammatory action.

TREATMENT.—As in some cases there are premonitory symptoms, we may first consider the prophylactic treatment of the disease. I have already noticed the fact that apoplexy occurs equally in stout fleshy persons, and in those of a spare habit, but we now wish to know whether there is determination to the brain, congestion, or feeble circulation. In the first case the face is flushed, exhibits the color of arterial blood, the head is hot, the pulsation of the carotids very manifest, and the pulse full and hard. To relieve this condition, we would give the patient a hydragogue cathartic, as, Compound Powder of Jalap and Bi-tartrate of Potassa, and follow it with a saline diuretic and Tincture of Gelsemium in small doses. If there is pain in the head, with feeling of tension, cups to nape of the neck and spine will answer a good purpose. The patient should be put upon a light diet, and though out-door exercise is beneficial, yet all causes of excitement should be avoided. By these means we may expect to overcome the predisposition to the disease, when by living a temperate life there will be no further danger. If there is a puffiness of the countenance, with a purplish or lead-color, cold sweat standing in drops on the forehead, with giddiness, stupor, and disposition to syncope, we have a case of congestion. Here we would resort to the hot stimulant foot bath, dry cups to the neck and spine, and a cathartic of, \mathcal{R} , Podophyllin, gr. v;

Jalap, gr. xx; Ginger, 3j; M., and divide in from five to eight powders, according to the case, and give one every four to six hours until they operate. The patient should be kept in the recumbent position until the symptoms pass off, and for some days should have a combination of Quinia, Hydrastin, Extract of Nux Vomica and Podophyllin, as heretofore recommended. If the cerebral circulation is feeble, as we will see from the pallid face, sunken eyes, dilatation of the pupil, ringing in the ears, disordered vision, etc., we would use tonics and stimulants, with Phosphoric Acid or the hypophosphites and nutritious food, to overcome the difficulty. In this case a total cessation of mental labor should be required, and all unnatural excitement avoided.

During the attack I would direct stimulant applications to the lower extremities, dry cups to the spine, and if the face was turgid and red, wet cups to the neck. In this case, if the patient could swallow, I would give a pill of, R, Croton Oil, gtt. j; Podophyllin, gr. j; with one or two grains of Capsicum; and to assist its action an enema of Compound Powder of Jalap, ʒss, in a pint of warm water. If the head is hot, cold applications should be employed, or sponging with warm water and fanning. If the face was dusky, lurid, or purple, with cold, clammy perspiration on the forehead, I should direct wet cups to the entire length of the spine, followed by a sinapism, and cloths wrung out of a hot decoction of Mustard and Capsicum, to the extremities and bowels. Internally, the cathartic and enema above named may be used, and a stimulant, as Ammonia, Chloroform, or Compound Tincture of Oil of Cajeput, given freely. When it results in persons of feeble circulation, the countenance being pallid or cadaverous, the eyes sunken and pupils dilated, we would employ the most powerful stimulants externally, and the Compound Tincture of Cajeput internally, and as soon as consciousness commenced to return, put the patient on the use of Quinia, and gradually adopt the treatment heretofore named as prophylactic.

As soon as possible after the attack the patient should be placed on a lounge or hard bed, in the center of a cool room. If possible, he should be kept on his side, with the face turned downward, so as to avoid the falling back of the tongue, which I have no doubt so impairs respiration when the patient is lying on his back as to lead to a fatal result by slow

asphyxia, in cases which would otherwise have recovered. If the attack has been preceded by a hearty meal, or as in some cases by the taking of two or three times as much ingesta as the stomach is capable of appropriating, the stomach should be evacuated, with a Salt and Mustard emetic, preparatory to other treatment.

If the attack has lasted beyond twenty-four hours, we may be satisfied that there is effusion, or that the cerebral hemorrhage has been considerable. In these cases we would keep the bowels open, the skin moist and active, by the use of baths and the internal administration of diaphoretics, and secretion from the kidneys by the use of an alkaline diuretic. As a diaphoretic, I prefer the Essl. Tincture of *Asclepias* and Carbonate of *Ammonia*, and as a diuretic a solution of Acetate of Potassa. When the circulation seems feeble, I believe it to be good practice to give the patient Quinia and Hydrastin pretty freely, and in some cases a small quantity of stimulants is advantageous.

COUP DE SOLIEL.

Sun-stroke is such a common affection in this country, during the heat of summer, that we would expect to find it described in all works on practice, and frequently mentioned in periodicals. But strange to say, with the exception of two or three notices in foreign journals, which were republished in this country, the literature of the disease is confined solely to the daily papers which report the attacks of the disease and the deaths from it, as they would the falling of a man from a house, or his being shot in a street rencontre.

The predisposing causes of the disease are such as enfeeble the frame and oppress the nervous system; thus, we find it to occur most frequently after slight attacks of sickness, after severe physical exertion, and especially after exhaustion of the nervous system. Exposure to the rays of the sun, the temperature being from 90° to 100° in the shade, is the direct cause; and though in a majority of cases this exposure has been prolonged for hours, and day after day, in others but very few minutes are necessary for its production.

As regards the pathology of sun-stroke, there is great discrepancy of opinion. Dr. Dunglison regards it as an inflam-

mation of the brain or its meninges, others as an exhaustion or paralysis of the brain, others as a species of apoplexy, and others again as an apoplexy of the lungs. Dr. Pirrie remarks that "The mode of death in all but the rapid form, is evidently by apnœa, or at all events the symptoms of apnœa plainly predominate, and hence the name "heat asphyxia" given by some to this most alarming disease. The symptoms are distinctly those of that mode of dying in which death commences in the lungs; but by what means the circulation begins to be arrested in the lungs—or, in other words, the manner in which high temperature operates in causing stagnation of blood in the lungs—whether it be by giving rise to immense engorgement, or by causing imperfect arterialization of the blood—I do not consider myself qualified to give an opinion." It is my opinion that the action of heat on the brain is productive of cerebral syncope or partial paralysis of the nervous system, and that this by enfeebling the action of the heart and lungs, causes the engorgement of the latter and difficulty of respiration.

SYMPTOMS.—Most generally the patient has a premonition of the approaching sun-stroke, in a feeling of giddiness, with heaviness of the head, and feeling of tension as if it was bound round with iron, ringing in the ears, and disordered vision. The feeling of faintness and difficult respiration is sometimes so marked, that with the other symptoms the patient is compelled to seek shelter, or to sit or lie down. Probably before reaching the desired place he suddenly loses consciousness and falls to the ground. In other cases the premonitory symptoms seem to be of brief duration, or to have been entirely absent. The patient suddenly falls unconscious, while walking along the street, or attending to his business, and though there may be brief returns of consciousness, it is not complete for several hours, or the patient may die in a short time after the attack. Irritability of the bladder is said to be one of the most certain symptoms of an attack.

If we examine a person suffering from sun-stroke, we will find the pulse frequent, sharp and irregular, sometimes soft, small, and easily compressed, the respiration is laborious, but not stertorous, in most cases the face is turgid but dusky, and the head hot. In some cases there is nausea and vomiting or retching, and occasionally involuntary discharges of urine and feces. These symptoms may continue to increase, the

disease terminating fatally in from one to two hours, or they may gradually pass off, the patient regaining consciousness, but being excessively feeble. It usually requires some time for the person to regain his strength—the head feeling heavy and dizzy, with disposition to syncope on slight mental or physical exertion. Frequently an irritability of the stomach, with diarrhœa, will remain and prove very intractable.

DIAGNOSIS.—Usually we have but little trouble in making a diagnosis, the occurrence of the disease while exposed to the heat of the sun, the difficult respiration, sharp and frequent pulse, and heat and redness of the face and scalp, are generally sufficient. It might be more readily mistaken for apoplexy than any other affection; yet if we recollect that in this the pulse is slow and full, respiration slow and stertorous, and complete loss of consciousness, we would not be likely to make the mistake.

PROGNOSIS.—The prognosis is favorable in a majority of cases, though in some the patient is dying from the first of the attack. If the pulse is regular, and respiration sufficiently free to aërate the blood, there is usually but little danger. If however, the pulse is rapid, irregular, very small, the countenance has a dusky, leaden hue, the lips purple or livid with labored respiration, the patient will, in all probability die.

POST-MORTEM EXAMINATION.—Mr. Longman remarks: "That in all the cases much the same appearances were presented, as if the patient had died asphyxiated from some cause. Thus, excessive engorgement of the lungs, amounting generally to complete obstruction of the pulmonary circulation, and, in parts, having all the appearance of true interstitial apoplexy, were most remarkable. The cerebral congestion, less marked in character and less constant in amount, seemed to me, *secondary* to the failure of the due performance of the act of respiration, and perhaps resulted from loss of tone in the vessels, and from enfeebled action of the heart, owing to the imperfectly oxygenized blood it was receiving."

TREATMENT.—The patient should be removed to the shade as speedily as possible, and placed in a recumbent position, care being taken that he is not crowded on by spectators, but that a free circulation of air is allowed. Cold water should then be freely applied to the head, the extremities rubbed with stimulants, and if possible a sinapism applied to the chest and epigastrium. Diffusible stimulants may be applied

freely; I prefer the Compound Tincture of Cajeput or Tincture of Xanthoxylum, Tincture of Camphor, or when these can not be obtained, Brandy and Capsicum or Ginger. In many cases, a brisk purgative, as Croton Oil and Podophyllin, will answer a good purpose; but frequently there is such irritation of the gastro-intestinal mucous membrane as to prevent their administration. Ten grains of Quinia, with an ounce of Brandy, is a most excellent remedy to overcome the nervous depression, and may be used in place of the medicines first named. If the face is much flushed, the head hot, and throbbing of the carotids, wet cups applied to the neck and spine will be useful, and may be followed by a sinapism if there seems to be need of further derivation.

When the patient commences to recover he should be kept very quiet and free from excitement, and should not be moved until late in the day. A small quantity of some diffusible stimulant, with occasionally a grain of Quinia an hour, is all that the patient needs. For two or three days, or until the effect has passed off, the patient should be quiet and careful in his diet. The bowels should be kept regular, and the skin and kidneys acting. A gentle bitter tonic, as the Nux Vomica pill heretofore named, will facilitate convalescence. If there is headache, with irritation of the stomach, a solution of Acetate of Potassa will usually be the best remedy, as these symptoms most usually depend upon diminished secretion of urine.

EPILEPSY.

Epilepsy is one of the most serious of the diseases of the nervous system, not because of its fatality, for it runs a very chronic course, but because there is no tendency to spontaneous arrest, and medicine has heretofore had very little influence upon it. One of the most distressing features of the disease is, that it gradually impairs the mind, until the person, once bright and of sound mind, becomes a driveling idiot or a raving maniac. The disease usually commences in childhood, most frequently between the ages of six and twelve.

The causes of epilepsy are various, and not very well understood. They may be divided into *intrinsic* and *extrinsic*, in the first case existing in the cerebro-spinal nervous centers, or their immediate surroundings, and in the second

existing at a distance, and affecting the spinal cord through the nerves. Of the first, we may instance inflammation and determination of blood to the cerebro-spinal centers, disease of the meninges and of the bowels, and injuries of the bones, giving rise to compression; or continued irritation, as by the presence of a spicula pressing the nerve-substance. Derangements of the blood may sometimes give rise to epilepsy, as in the retention of the solids of the urine and other changes that we are not cognizant of. By an *extrinsic* cause, we understand one in which the irritation being set up at a distance is propagated along the nerve trunks to the spinal cord, where, setting up an irritation, it manifests itself through the excito-motory system of nerves. The most simple instance of this action is witnessed in the case of cramps of the muscles of the extremities from irritation of the intestinal canal, as in cholera morbus, and in the case of infantile convulsions from teething or from gastro-intestinal irritation. Epilepsy may in this way arise from irritation of the stomach from crude indigestible food, from worms, from irritation of the bowels, the kidneys, bladder, or genital organs. The cause being sufficient to set the disease going, may disappear entirely in a few days or weeks, and yet the epileptic attacks continue. It would seem that when this abnormal action is once set up, the tendency to its continuance is the same as in healthy functions; but why this is we know not, and neither can we give any probable theory.

As regards the *pathology* of epilepsy, we are much in the dark. In some cases it would seem to be dependent on a too free circulation of blood in the nervous centers—determination of blood; in other cases upon a sluggish circulation—congestion; and in still others, upon some defect in nutrition. There are cases in which it is very manifest that the condition of the blood is the exciting cause of the epileptiform seizure, though we must still imagine an unnatural irritability of the nerve centres to be so impressed. Thus, I have seen cases in which every convulsion was preceded by deficient secretion of urine; and so long as this secretion could be maintained in the normal condition, so long would the patient be free from its seizure. Cases in which the disease is dependent upon the amount and character of the menstrual discharge have come under the notice of almost every one. Experience, however, has proven to me, that epilepsy is eminently a disease of

debility of the nervous system, even in cases in which there seems to be the most evident symptoms of irritation and determination of blood.

Dr. Radcliffe has written a most interesting paper on the pathology of convulsions, and draws the following conclusions: "1st. The epileptic and epileptiform paroxysm is not unfrequently preceded by signs of defective respiration. 2d. It is usually accompanied by a state of unmistakable suffocation. 3d. The condition of respiration during convulsion is one which supports the notion that the convulsion is connected with depressed and not with exalted vital action. 4th. In the chronic form of convulsive disorders, the inter-paroxysmal condition is usually marked by evident signs of feeble circulation. 5th. The epileptic and epileptiform paroxysm is usually, if not invariably preceded by signs of failure in the circulation. 6th. In the fully developed paroxysm, the pulse is sometimes aroused to a considerable degree of activity, not because the arteries are receiving a largely increased supply of *red* blood, but because they are then laboring under a load of *black* blood, as they are found to labor during suffocation. 7th. Convulsion is never co-incident with a state of active febrile excitement of the circulation. 8th. Epileptiform convulsion is a direct consequence of sudden and copious loss of blood. 9th. The condition of the circulation during convulsion is one which supports the notion that the convulsion is connected with depressed and not with exalted vital action."

It is of but little use to try to study the original cause in many cases of epilepsy, for as has been before remarked, it has possibly passed away months before our examination. There is always, however, an exciting cause, which it is necessary to determine, if possible, as upon its removal, the success of our treatment will in great measure depend. I have known it to be a failure of excretion, an imperfection in digestion, derangement of the menstrual function, excessive mental emotion, and not unfrequently excessive sexual excitement.

SYMPTOMS.—In some cases there are brief, premonitory symptoms of the approaching seizure, and rarely, the patient has notice of it for hours. The sensations differ in different cases, sometimes a sense of weight and oppression in the head, with giddiness and loss of voluntary power; in others, a coldness passing from the feet upwards, and terminating in

the epileptic seizure when it reaches the head. In the more protracted cases there is usually a marked dullness and hebétude, noticed by the friends, and the patient feels a loss of consciousness that is very unpleasant.

In an attack of epilepsy the patient becomes suddenly unconscious and falls to the floor, or wherever he may be situated. Involuntary movement from spasmodic contraction and relaxation is characteristic of the disease, and may be very intense or mild. If severe, the limbs are thrown in various positions, the trunk contorted, and the features remarkably changed. First one group of muscles contract, and then another, so that parts are kept in constant movement. The lower jaw and tongue being also affected, we find that usually the latter organ is severely bitten if means are not taken to avoid it. The patient usually froths at the mouth; respiration is normal in frequency, and the pulse but little changed, except that it is smaller and feebler. The countenance is not only distorted by the convulsion, but in some cases is turgid and purplish, or almost black. Frequently the urine, and sometimes the feces, are passed involuntarily during its continuance.

The duration of the epileptic seizure is very variable, sometimes lasting but a few seconds, and at others for fifteen or twenty minutes. The patient may have but one attack at a time, or they may succeed one another at short intervals until quite a large number has passed. When the attack ceases, the patient becomes completely relaxed, and usually falls into a deep, comatose sleep, from which it is almost impossible to arouse him, for an hour or two. The frequency of their recurrence varies in different cases; in some they do not appear oftener than once a month, or even less frequently; in others, every week, or almost every day. Sometimes they are so distinctly periodic that the return can be closely calculated, but at others they are very erratic in their course. In many cases there are slight seizures during the intervals between the principal attacks; in these the patient seems to lose consciousness for but a moment, and stares vacantly at persons present; passing off, he has no recollection of it, nor of the epileptic attack.

DIAGNOSIS.—We diagnose epilepsy from apoplexy by the fact that in the first there is continual spasmodic action, while in the last there is not the slightest motion; in the one there

is frothing at the mouth, in the other it occurs but rarely; in apoplexy the respiration is slow and stertorous, and the pulse full and slow, while in epilepsy respiration is of usual frequency without stertor, and the pulse is small and frequent. We diagnose it from hysteria by the previous history of the case, and by the fact that we are able to determine that there is not complete loss of consciousness in the last case.

PROGNOSIS.—So far as regards the cure of the disease, the prognosis is unfavorable, unless the means here recommended prove more serviceable than those heretofore used. But as before remarked, it runs a course of years, and the patient dies finally of some other affection in a great many cases.

POST-MORTEM EXAMINATION.—In a majority of cases, the scalpel reveals no lesion to account for the severe disturbance of the system during life, and what lesions are found generally have no relation to the epileptic affection. In some cases the evidence of slow inflammatory action is found in the brain or spinal cord, or in rare cases, a morbid growth in the nervous substance, or from the meninges or bones, is observed, and in others a change of structure, usually softening, has occurred. These, however, form but a small fraction of the cases. In other instances, some organ, as the stomach, kidneys, uterus, etc., is found diseased, and as the epilepsy made its first appearance with the symptoms of these diseases, we have good reasons to believe that they acted as exciting causes.

TREATMENT.—The treatment in these cases is of two kinds: that for the arrest of the paroxysm, and that for the radical cure of the disease. If called to see a person suffering from an attack of epilepsy, we would place the patient in such a position that he would not be likely to injure himself, and if the convulsive action was severe, get a friend to hold a cork or piece of soft wood between the teeth to prevent biting the tongue. Usually this is all that is necessary, except in cases where the patient has a succession of attacks. In these cases, as soon as the first paroxysm commenced passing off, we might administer the Compound Tincture of Lobelia and Capsicum, in half-teaspoonful doses every five or ten minutes, until nausea is induced, which in a large majority of cases will prevent a return of the convulsion; or we may use the Tincture of Gelsemium for the same purpose, giving it in doses of from ten to twenty drops, or even half a drachm of the common tincture every ten or fifteen minutes, until the full relaxant

influence of the remedy was produced. A combination of Sulphuric Æther, Liquor Ammonia, and Tincture of Assafoetida may be used for the same purpose, but is not as efficient as the preceding measures. If need be, stimulant applications may be made to the lower extremities and to the spine, but usually this is not necessary.

As regards a radical cure we may attempt it in all cases in which there is no structural lesion of the spinal cord or brain, or their enclosures, to account for the disease; if there is, the case becomes one for the surgeon rather than the physician, though operations thus far have proven very unsuccessful. If we can detect any lesion of function, especially if it seems to bear a relation to the epileptic seizure, we would employ remedies for its removal. Thus, in rare cases, a cure will result from the removal of worms, and relief of irritation of the intestinal canal; from the relief of menstrual irregularity; by establishing and maintaining free secretion from the kidneys, when functional lesion of these organs has been prominent, etc. In some cases, the disease appears to be dependent upon spinal irritation and determination of blood and occasionally a cure may be effected by the use of the irritating plaster to the spine, the administration of Tincture of Gelsemium, and the use of those other measures recommended under the head of spinal irritation. Belladonna, Ergot and Nux Vomica may be used when there seems to be feeble circulation in the nervous substance and tendency to congestion, manifested by symptoms of paralysis, or a feeling of deadness, coldness, or of tingling, as if the part was asleep.

In a large majority of cases, however, there is no lesion that would seem sufficient to occasion the epileptic seizure; and even when there is, and we have removed it, and restored all the functions of the system, the nervous disease will still continue. Here, our treatment will be, to a great extent, empirical; it is true, we correct all lesions of function, and get the system in as healthy a condition as possible, but after this we give remedies simply because they have proven efficient in other cases. I have employed the Bromide of Ammonium in my practice, with the most marked success, sometimes using it alone, and at others in combination with other remedies; I prescribe it in the proportion of half an ounce of the salt, to four ounces of water, of which the dose is a teaspoonful four or five times a day. If there is feeble-

ness of the system, and especially of the organs of digestion, the *Nux Vomica* pill, heretofore named, proves useful. Frequently I associate with it, *R*, Tincture of *Lobelia*, Tincture of *Valerian*, āā , f3j ; Tincture of *Gelseminum*, f3ss ; Simple Syrup, f3jss ; *M.*, and give in teaspoonful doses every four hours, alternating with the other. Some most persistent cases have yielded to this treatment, and I am in hopes that it will prove curative in many of these distressing cases.

All undue excitement must be avoided in epilepsy, the sufferer leading the most regular life. Some employment should be furnished that would amuse the mind, and keep it normally active, but much mental exertion is injurious; novel reading, or anything in which the mind becomes deeply absorbed, proves hurtful. Above all things else, excessive sexual excitement is most injurious, either as solitary vice or too frequent connection, and it will become the practitioner's duty to examine into the case with reference to this matter, and give the necessary advice.

CONVULSIONS.

Convulsions occur far more frequently during childhood than after puberty, though they may be occasionally noticed at all ages. The causes giving rise to them are various. Sometimes they are produced by disease of the brain and spinal cord, as in determination, inflammation, and some obscure structural lesions; at others they arise from an external irritation, it being transmitted to the spinal cord, and giving rise to excited reflex action. According to Dr. Marshall Hall, convulsions are dependent upon irritation of the *true* spinal system, and though this occurs in some cases from causes acting directly upon the nervous system, it more frequently depends upon an irritation of some distant part, transmitted to the spinal cord through the nerves. Thus, we find convulsions arising in this way during dentition, from crude or acrid ingesta, from irritation of the stomach or bowels, from the irritation produced by worms, and from inflammation of internal organs, or disease of the surface, attended with great irritation and pain.

SYMPTOMS.—If convulsions occur during disease, they are generally preceded by tolerably well marked symptoms, by

which the close observer may anticipate their approach ; and though not always constant it is well to give them due consideration. The most marked of these, is a sudden, jerking, involuntary movement of the extremities, and quick, grasping movement of the hands. This will be observed as well when the child sleeps as when awake, and is sometimes increased by motion. Usually the child sleeps with its eyes partly open, and we observe that the globe of the eye is drawn upward and rolled about, and this involuntary movement of the eye may be frequently noticed when awake. With these symptoms there may be excitement of the nervous system, manifested by restlessness, fits of crying in children, and sleeplessness ; or we may have the reverse, the patient being dull, impassible and somnolent.

The attack is always sudden, the patient losing consciousness, and being to a great extent insensible. The convulsion is usually very marked, but in some cases, we will find it slight or entirely absent, the patient being rigid and remaining in one position. Respiration is labored, in many cases very markedly so, and in these the countenance is turgid and purple, and the features much distorted. The pulse is very frequent and small, or it is soft, feeble and small, and but little increased in frequency. In the severer cases, deglutition is almost impossible, and from the falling backward of the tongue respiration is snoring. These symptoms may continue for a moment or two to fifteen minutes or half an hour, in the milder cases terminating in a return of consciousness, but the severer in a deep sopor, from which the patient can not be aroused. One convulsion may terminate the attack, but in many cases one succeeds another for from one to twenty-four hours. The interval between the spasms is frequently marked by nothing more than a relaxation of the entire system, and a restoration of the power of deglutition, the patient being in a semi-comatose condition, and totally unconscious. Children having convulsions once, are usually more liable to them than others, and they will frequently come on from slight causes.

DIAGNOSIS.—The diagnosis of convulsions is very easy, there being no possible chance of mistaking the symptoms. The sudden loss of consciousness, convulsive movement, difficult respiration, and frequent, small pulse, can not be confounded with any other disease. It is true that we can not distinguish

between simple convulsions and epilepsy, except by the lapse of time.

PROGNOSIS.—The prognosis is usually favorable, though it is very difficult in some cases to arrest the convulsive action. Occasionally cases will be seen that will prove fatal in spite of treatment.

POST-MORTEM EXAMINATION.—The scalpel reveals no constant lesion to account for the symptoms. When there has been determination to or inflammation of the brain, we of course will find the evidence of these lesions. But when the disease has arisen from an *extrinsic* irritation, there is not the slightest evidence of disease of the nerves.

TREATMENT.—Our primary object is to arrest the spasmodic movement which is so alarming to the friends, and, no matter how often seen, to some extent so to the practitioner. Calmness and decision are very important requisites in this case, as all around the patient is excitement, and a hundred expedients to benefit the sufferer are proposed. Usually we would give our patient the Compound Tincture of Lobelia and Capsicum, in doses of a teaspoonful every five minutes to an adult, and one-fourth of a teaspoonful as frequently to a child. We can usually administer this during the paroxysm by carefully pouring it into the mouth, and allowing it to pass down the throat gradually. This should be continued until the convulsion passes off, nausea being generally induced; or, if we have reason to suspect crude ingesta, we should carry it to free emesis, or instead give a sufficient quantity of Ipecac to evacuate the stomach. If the medicine can not be given by mouth, we would use it as an enema, combining two or three times the quantity with the necessary amount of water, and repeating it as occasion requires. The Tincture of Gelsemium is the next and most efficient agent, and may be given in doses of from half to one teaspoonful of the common tincture to an adult, or from ten to fifteen drops to a child two years old. It may be repeated at intervals of ten or fifteen minutes, or as occasion requires. Tincture of Assafœtida or Sulphuric Æther, sometimes answer a good purpose, and occasionally Valerian may be added to the combination for its arrest. These remedies should not only be given during the convulsion, but afterwards to prevent its recurrence.

Bathing the feet in hot Mustard water for ten or fifteen minutes, or the use of the hot sitz bath, is frequently attended

with benefit. Occasionally sinapisms to the feet or ankles, are applied, or to the bowels if there seems to be heat or irritation. If the face is flushed, and the head hot, we would use cold applications, and in some cases cups to the neck and spine. There are cases, as for instance when the skin was hot and burning, that I would prefer the wet sheet pack to all other medication.

If the symptoms of convulsions are noticed, we may almost always prevent their occurrence by the administration of small doses of Tincture of Gelsemium. So certain is it in its action in doses of from six to ten drops every half hour, hour, or two hours, to a child two years old, that I leave it in cases of threatened convulsions with the greatest certainty that it will prevent their occurrence; and in families in my practice where there is a tendency to convulsions during childhood, the remedy is kept constantly on hand; not only is it a good prophylactic before the convulsion, but it is also one of our best remedies to prevent their recurrence when once arrested. Just as soon, however, as the first convulsion has passed off, we endeavor to learn its cause, so that by its removal we may avoid any danger of its recurrence. Thus, if from crude ingesta, we give an emetic; if from irritation of the bowels, we use the appropriate means to relieve it; and if from arrested secretions, these should be reëstablished.

TETANUS.

Tetanus or *lock-jaw* is the most fearful of the diseases of the nervous system, not only from its intractability to medicine, but from the severe and continued suffering that attends it. It most usually arises from injury, though in some cases it is idiopathic. The smallest injury is as likely to cause the disease as the largest; and it is more frequent, the further the injury is from the spinal cord. Small punctured wounds seem to be the most dangerous, as from running a nail, thorn, piece of glass or needle, in the foot or hand. It must not be supposed that these are the only injuries followed by tetanus, as it occurs after amputations and other operations, from fractures, dislocations, and other injuries. Where idiopathic, it seems to be partially dependent upon a vitiation of the blood, and partly upon an extremely excitable condition of the spinal

cord. We do not know why a distant irritation, as of a wound of the foot, for instance, should produce an irritation of the spinal cord, and dissection does not assist the explanation. But that there is an extreme erethism and excitement of the true spinal cord, prolonged until all vitality is exhausted, can not be doubted. This excitement and its effects are produced by poisonous doses of Strychnia, and yet though the convulsion may continue for hours or days, there is no evidence of physical lesion.

SYMPTOMS.—When tetanus results from injury, a week or more frequently intervenes between the occurrence of the accident and the attack. During this time there is no evidence of the disturbance, and the wound frequently heals up kindly previous to the commencement of the disease. In some cases there will be a sense of soreness and stiffness, extending from the injured part up to the spinal cord, and more or less of it may be felt in the back. The approach of the disease is manifested by a stiffness of the muscles of the neck, and of the mouth and throat; these increasing, he finds it impossible to turn his head without turning the body, and he can not open the mouth or swallow without pain. Soon the disease develops itself in the form of an excessive aching contraction of various groups of muscles, the pain seeming to shoot through the body to the part affected; and these are accompanied with a sensation of almost unendurable tension and pressure. This lasts for a few minutes, and then gradually ceases, but we find by examination there is still an unnatural rigidity and stiffness of the body, it not being relaxed after the spasm has passed off, as in other convulsive affections. The intervals of rest may at first be one or two hours, but they are gradually decreased, until at last there is but a minute or two, or they succeed each other like so many electric shocks. The breathing is quick and laborious, and the pulse, though calm and less hurried, small and irregular. The face is sometimes pale, but oftener flushed; the whole countenance evinces the most marked signs of deep distress, and swallowing is pertinaciously abstained from, as accompanied with great difficulty, and often producing a sudden renewal of the paroxysms. The last stage of the disease is truly pitiable, the spasms return every minute, and scarcely allow a moment's remission. In some cases the posterior muscles are principally involved, and in the latter stage of the disease the spine will

be so recurved that the patient will rest on his head and heels. In some cases the spasms become so severe that it is with the greatest difficulty the patient can be kept in bed; and cases are reported in which fracture of the bones occurred from the intense muscular contraction. The muscles of the inferior maxillary are so involved that the mouth is frequently opened and closed with great force, and the tongue, being protruded by spasmodic action, is often horribly mangled and bruised. The countenance is very markedly changed, the eyes being watery and fixed, the nostrils drawn upwards, and the cheeks backward to the ears, giving rise to that peculiar expression termed *risus sardonicus*. These symptoms continuing, gradually exhaust the patient, or a general convulsion occurs and he suddenly sinks under it.

DIAGNOSIS.—Stiffness of the muscles of the neck, and of the jaw, with difficult deglutition, should always occasion alarm, when unaccompanied with disease of the throat, or cold, and especially when occurring after an injury. Proper treatment at this time, I am satisfied, will avert the disease, and hence the importance of recognizing the symptoms. When the disease is fully developed, the symptoms can not be mistaken, the continued recurrence of painful spasms, the rigidity of the body, with perfect consciousness, are symptoms that do not occur in any other affection.

PROGNOSIS.—This is undoubtedly one of the most fatal diseases we are called to treat, and though some may recover, a large majority will die. If taken at the commencement we may, as before remarked, control the disease, but after it has become severe, the most we can hope for is, to modify the convulsive action, and support the strength of the patient, so that it may wear itself out.

POST-MORTEM EXAMINATION.—Various lesions are observed, the result of the long-continued and excessive muscular contraction, and the consequent derangement of the circulation, but they bear no relation to the disease other than as effects. On examination of the spinal cord and base of the brain; the membranes and even the nervous tissue is found injected, and there is also evidence in the deposit of coagulable lymph, of a low form of inflammation. In some cases these appearances are well marked, but in others very obscure.

TREATMENT.—If called to a case presenting the forming symptoms of tetanus, I should immediately give an emetic of

the Compound Powder of Lobelia and Capsicum. Its action should be thorough, and continued until it produces complete relaxation, and perspiration. This should be followed by Tincture of Gelseminum, in doses of from twenty drops to one fluid drachm, every hour or two, or sufficiently often to control the symptoms. The bowels may be moved by the Compound Podophyllin pill, if deemed necessary; and if the patient is sleepless, a sufficient dose of Opium or Sulphate of Morphia, may be given to produce sleep: it will generally require two to five grains of the first, and from half to one grain of the second. I am satisfied that if any treatment will prove successful, this will, and if any one agent is more to be relied on than another, it is the Gelseminum.

If the tetanus is the result of a wound or injury, it sometimes becomes necessary to make use of local applications. As a general rule, if it has been a punctured wound, as from a nail, thorn or piece of glass, and has closed up on the outside, it should be opened, and syringed with a saturated solution of Sesqui-carbonate of Potassa; if irritable and tender to the touch, secreting a sanious pus, it should be freely cauterized with Chloride of Zinc, and a soothing poultice, as of Poppy-heads or Stramonium applied. Whatever will quiet irritation most speedily should be applied. In some cases, the injury being severe, amputation has been resorted to with reported success, but I am inclined to doubt it, as all the cases that have come to my knowledge have died.

When the disease is fully established, we may attempt to control the symptoms by the treatment above named, and if the case is mild it may succeed. If it does not arrest the spasms, or increase the interval between them, it should not be continued longer than twelve to twenty-four hours. Cups to the spine have been used with advantage, and if there was great difficulty of breathing from spasm of the diaphragm, they might be applied entirely around the margin of the false ribs. Opium and Chloroform seem now to be our principal remedies, as they give ease when all others fail; Opium may be given in doses of five grains, or Sulphate of Morphia in doses of one grain; Chloroform, however, answers a better purpose; as by its continued use we can control the spasm and pain. Anæsthesia need not be deep, but should be so continuous as to prevent a return of the convulsion.

The Woorara, used as an endermic injection has been recom-

mended as an antidote, and though successful cases were reported, it is now believed to be entirely inefficient. Nicotine has been used in Dublin with more marked success than has attended any other agent, and I will certainly try it, should I be so unfortunate as to have another case. It is given in doses of one drop in wine, and repeated as often as may be necessary to control the convulsion, and if need be the dose is increased to two drops, or if rejected by the stomach, it may be used as an enema. Cases are reported in which it is manifest that the remedy exerts a marked controlling power over the disease, which may be rendered curative with proper care.

It must not be forgotten that the patient needs sustenance through this prolonged muscular action and pain. It should be given in the form of rich animal broths and milk, with a sufficient amount of brandy. If it can not be taken by the mouth on account of convulsive action, it should be used as an enema.

HYDROPHOBIA.

Rabies is a disease of great antiquity, and has been described by most writers on Medicine from the earliest ages. It has its origin in the canine and feline animals, but may be propagated to all genera and species.

How the disease originates, or what is the character of the poison is beyond our knowledge. Some contend that from its first commencement it has been propagated by contagion, while others reason that the causes which produced the first case, may be again set in action and reproduce the disease. These suppose that protracted thirst or hunger, extreme heat, violent excitement or anger, the sexual heat, etc., variously associated, will develop the malady independently of contagion.

When once developed it is transmitted from one animal to another and to the human family, by a specific animal poison found in the saliva, and which is usually introduced into the blood, through a wound made by the teeth; though like all other animal poisons, all that is necessary is, that it shall be brought in contact with an abraded surface.

As regards the physical properties or character of this poison, nothing is known, and neither has it been determined

what part secretes the poison, further than that it is furnished by the glands connected with the mouth. Some writers contend that it is not a disease of the blood, and urge as evidence the long period that sometimes elapses from the inoculation before the disease is developed.

They therefore urge that it must be the nervous system that is affected, the phenomena being those of a nervous malady of the most intense form.

As regards the pathology of the disease, we may assume that the poison of rabies absorbed into the system, gives rise to a peculiar irritation of the nervous system, more especially marked in the true spinal system. The symptoms all point to the medulla oblongata and spinal cord as the seat of the disease, and the post-mortem examination shows these parts to have been subject to severe irritation and vascular excitement.

The appearance of hydrophobia in the dog is indicated by a change in his disposition, usually exhibiting a marked antipathy to other animals, and rarely becoming attached to those to whom he was formerly indifferent. He seems also to have changed his habits, picking up straws, rags or any small objects, and licking cold surfaces, as stone, iron, etc. He becomes morose and sullen in his disposition, becomes lonely, has a haggard and suspicious look, and is constantly thirsty; respiration soon becomes difficult, and saliva flows from the mouth, and forms a viscid foam, and he shows great irritability and a disposition to snap at and bite other animals, though he may still obey the voice of his master. At last he becomes uncontrollable, and flies at every creature he meets, and having no fear, he is not intimidated by holding or striking at him with a whip or stick, but is rendered more savage. At no period is there any dread of water, but the animal still exhibits strong evidences of thirst, and runs to it with avidity, and all other animals, with sometimes the exception of the horse, drink with ease. The disease having continued for several days, the animal is at length exhausted, and dies in convulsions.

SYMPTOMS.—The period of incubation is seldom shorter than from thirty to forty days, or may be postponed from one to two years. The wound seems to heal as kindly as it does in other cases, and usually no unpleasant sensation is experienced in it. Sometimes there is a feeling of constriction in the cica-

trix, or slight shooting pain, but we are inclined to attribute this, as well as the quick pulse and constitutional symptoms sometimes met with, to the effect on the mind of the patient, rather than to the influence of the poison.

The invasion of the disease is usually marked by a recurrence of pain at the seat of the injury, which shoots upwards in the course of the nerves, occasionally to the epigastrium or præcordia. Not only is there pain, but the cicatrix becomes of a dark livid red, is irritable, tumid, and sometimes surrounded by small phlyctenulæ, containing a bluish fluid, or in rare cases the cicatrix opens and discharges a watery or icherous fluid. The patient is now very anxious and restless, and complains of drowsiness, chilliness, flushes of heat, and sense of constriction of the throat, and stiffness of the parts concerned in deglutition. The act of swallowing, especially fluids, is now attended with pain and distress, and by spasmodic action of the muscles engaged, so that frequently they are forcibly ejected from the mouth. The difficulty of swallowing rapidly increases, and the patient fears to make the attempt, and the sight of fluids occasions the most distressing spasms of the throat, followed by sobbing, tremor, forcible respiration and exhaustion.

The sufferings now become intense; the mouth is dry, parched and clammy, a frothy saliva being secreted, and occasionally forcibly expelled during the paroxysms; the thirst is intense, though the sufferer is not only unable to take fluids, but the sight or sound of them gives rise to uncontrollable convulsions; the countenance is haggard and anxious, the brow contracted, the eyes staring and wild, and startling in their expression, and the angles of the mouth retracted; respiration is hurried, laborious, and attended with dryness and constriction of the air passages; and the sensibility becomes so exalted that the slightest touch, or a breath of cold air striking the surface of the body, will occasion a paroxysm.

The mind of the sufferer is usually clear in the absence of the paroxysms, but when they are on, he has the rabid impulse of biting or tearing to pieces whatever comes in his way. These symptoms continuing, the patient becomes gradually exhausted, the pulse becomes small and feeble, respiration hurried and difficult, and he dies suddenly during a violent exacerbation. The attack may last from two days to a week,

or in some rare cases, the symptoms become ameliorated, and quietly wear themselves out in the course of two, three or four weeks. In these last cases, the patient rarely recovers completely, but has occasional slight returns of the original symptoms.

DIAGNOSIS.—Usually we have to take the patient's word as regards the rabidity of the animal inflicting the wound, when he applies for advice a short time after the accident. It is a good rule in these cases to always treat it as if it were the bite of a rabid animal, if the patient believes it, or if the evidence is in any respect in favor of that opinion. When the disease has fully developed itself, there is no mistaking its character, the difficulty in deglutition, spasms of the throat, increased by attempting to swallow fluids, and the peculiarly wild and anxious appearance of the countenance are sufficient.

PROGNOSIS.—The prognosis is extremely unfavorable, but very few cases recovering.

POST-MORTEM EXAMINATION.—The fauces, pharynx and œsophagus are usually found to be injected and reddened, and covered to a greater or less extent with lymph. The mucous membrane of the respiratory apparatus is affected in the same manner, showing evidence of determination of blood, though in this case the blood is dark-colored; the lungs are usually congested, and more or less frothy mucus is found in the bronchial tubes. The vessels of the brain and spinal cord are generally congested, and the sinuses especially are filled with black blood; there is also, in many cases, effusion into the ventricles and sometimes into the cavity of the arachnoid. The condition of the spinal cord varies in different cases, but in all it manifests serious lesions, as we should suspect from the symptoms observed during life.

TREATMENT.—Immediately on the receipt of the injury, it is recommended to wash the wound or wipe it dry, and suck it with the mouth for five or ten minutes. Or the part may be immediately excised, or a ligature applied between it and the trunk, if of one of the extremities, to prevent the poison from gaining entrance into the system; this will be done before a physician can be seen. When the case presents itself to us, we may excise the part bitten, or apply a cup to it, draining it well, or we may cauterize it freely. I prefer the latter practice, and use a saturated solution of Chloride of Zinc, bringing it in contact with the whole abraded surface.

A deep eschar is formed, which does not slough for several days, and when thrown off the wound suppurates freely. Three cases were thus treated by me in 1857, that had been bitten by a dog that communicated the poison to several animals which died of hydrophobia; the cauterization was very thorough and deep, and not more than half an hour after the injury; not one of the cases had any symptoms of the disease. A fourth case occurred in 1859, and a fifth in 1862, which were treated in the same manner and with the same result, but in neither of these was the evidence positive that the dog inflicting the bite was rabid. No internal medicines was used in any case.

We must not conclude that all persons who are bitten by an animal known to be rabid will have hydrophobia, as experience has demonstrated that the reverse is the fact. Many times the bite is inflicted through the clothing, and the poisonous virus is likely to be rubbed off the teeth of the animal as they pass through. In other cases the flow of blood is so free as to wash the poison out. Thus Mr. J. Hunter gives a case in which twenty persons were bitten by the same dog, and but one was affected by the disease. And Bennett states that at Sanlis a dog bit fifteen persons, three of whom died of hydrophobia. M. Trollet reports seventeen bitten by a wolf, with ten deaths, and twenty-three by a she wolf, with thirteen deaths, and in most of these precautions were used to prevent infection.

When hydrophobia is fully developed, we are at a loss how to treat the patient; some writers have recommended the employment of Lobelia to keep up continuous nausea; others to give *Scutellaria* in infusion in as large doses as the patient can bear; and others the narcotics, as the *Cannabis Indica*, *Belladonna*, *Stramonium*, *Hydrocyanic Acid*, etc. Each has been employed thoroughly, and though they may have so mitigated the symptoms as to have led the attendant to suppose that under more favorable circumstances they would have been followed by success, yet we have no evidence that a single case has been cured. Evacuants have not only failed to accomplish any good result, but have undoubtedly hastened death. The *Anagallis Purpurea* has been highly extolled, and cases reported cured, but we are not told whether it was used as a prophylactic previous to the full development of the disease, or afterward, and as will be noticed, very much depends

upon this. If I had to adopt a treatment in these cases, it would be the continuous hot bath, Quinia in large doses, and Chloroform by inhalation.

DELIRIUM TREMENS.

Delirium tremens, in a very large majority of cases, is the result of intemperance in the use of intoxicating liquors, and usually follows a protracted debauch. It may be produced by the habitual use of Opium, and in rare cases it may result from excessive emotional excitement in persons of feeble health. As a general rule it occurs in persons who are habitually intemperate, though they may never have been so intoxicated as to attract much attention. It is claimed by some that delirium tremens is not the result of excessive excitement, but that it makes its appearance when the person has ceased to drink, either from inability of the stomach to receive it, or because they desire to sober up. Hence they say that it is the result of the withdrawal of the stimulant at a time when the system is accustomed to its use. This would be good reasoning were it not for the fact that in very many cases it comes on while the person is still drinking to excess. How then will we harmonize these opinions, or rather these facts? There is only one way, and that is, that there is a delirium of drunkenness following the debauch immediately, and another that makes its appearance in from two to seven days afterwards. It may be that this accounts for the great difference in the treatment of the disease.

SYMPTOMS.—Delirium tremens is usually announced by a marked vigilance and entire sleeplessness, though the person's mind may as yet be entirely clear, and free from the vagaries that are soon to make their appearance. We find that there is great irritation of the stomach, frequently thirst, sometimes nausea, and in all cases an entire loss of appetite, the patient having usually taken but little if any food for several days. The pulse is generally slow, and the hands and feet are cold and clammy; he is anxious and dejected, sighs frequently, and complains of oppression about the præcordia. These symptoms continue sometimes for two or three days, at others for but a few hours. The restlessness and vigilance of the patient are now increased, and the countenance has a pecu-

liarily wild expression ; mental delusions now occur, at first at intervals, and easily displaced by reasoning with him, but at last becoming fixed and constant, he sees curious shapes and beings, snakes, devils, dragons, assassins, etc., and is in continual fear of his life, or of future retribution. It is singular that these visions are so generally frightful, and strike the poor sufferer with mortal terror, and yet the cases are very rare where it is otherwise. He sees them on his bed, peeping and laughing at him from behind the furniture, grasping at him from the air, climbing on his body, and it is impossible to displace these fancies. Occasionally they take human shapes, but are still objects of terror, as murderers, thieves, etc., and he tries various means to escape from their clutches, even in some cases to jumping out of the window. The intensity of this delirium varies in different cases, the patient being managed with ease in some, but in others requiring to be held down in bed to prevent him from injuring himself and others. During this time the skin is harsh and dry, the pulse frequent and small, the tongue dry and furred, and the appetite entirely lost. The secretions are all diminished, the patient is feeble, and there is an unnatural tremor of the muscles. Continuing in this way for a variable period, it may terminate by a subsidence of the excitement, and by a deep sleep, from which the patient awakes free from these morbid fancies. In other cases the delirium becomes more and more severe, until finally the system sinks under it, the patient dying from the fourth to the twelfth day.

DIAGNOSIS.—The previous history of the person, the marked uneasiness and restlessness of his manner, and the peculiar wildness of his countenance, and constant watchfulness, will determine the nature of the disease at the commencement. In a more advanced stage the symptoms can not be mistaken by the most casual observer.

PROGNOSIS.—The prognosis is generally favorable, except in cases in which the system has been greatly shattered by long-continued intemperance. It is, however, many times, a very dangerous disease, and requires great care in its management. We may look for a fatal termination, if the watchfulness increases for two or three days and the illusions are constant and keep the patient in a state of continual terror and excitement, the pulse being quick and feeble. But if the watchful-

ness and illusions gradually become less, with symptoms of drowsiness, the case will terminate favorably.

POST-MORTEM EXAMINATION.—The lesions resulting from intemperance are many and of various character. The digestive apparatus seems to suffer first and to the greatest extent; thus we find the mucous membrane of the stomach thickened, of a red or reddish-brown color, sometimes like mahogany, and covered with a dark, flaky material; sometimes it seems just on the verge of mortification. The mucous membrane of the small and large intestines is not unfrequently affected in a similar manner, though not to so great an extent. The liver is often enlarged, and of a yellow or fawn color, granulated or showing evidences of fatty degeneration. The nervous centers do not always exhibit sufficient change to account for the symptoms; frequently there being nothing more than slight opacity of the arachnoid, injection of the pia mater, and increase of the puncta vasculosa, when the brain is affected. Occasionally there is an increased amount of fluid in the ventricles, injection of the membranes, with more or less deposit of coagulable lymph.

TREATMENT.—Delirium tremens may usually be easily arrested at first, and it is at this time that I prefer to treat it. If the symptoms are just commencing in a hard drinker, I frequently give a pill of \mathcal{R} , Extract of Nux Vomica, gr. vj; Hydrastin and Quinia, āā , 3ss; M. and make thirty pills, of which one may be taken every three or four hours. Very many cases can be arrested in this way without trouble. In other cases, and especially if there is great irritability of the system, prolonged abstinence and watchfulness, I order a mixture of \mathcal{R} , Tincture of Gelsemium, 3j; Tincture of Opium, 3ss; Tincture of Veratrum, 3j; Simple Syrup, 3j; M., and give in teaspoonful doses every hour, with half an ounce of Brandy, until the patient becomes quiet and sleeps. Occasionally we may use the sedatives alone, giving Tincture of Veratrum in doses of five drops largely diluted, or Tincture of Digitalis, in doses of a teaspoonful every two hours until the patient is quieted.

When the disease is fully developed, we may occasionally succeed with Opium and stimulants, or with either of the two, though I do not like the practice. Dr. I. G. Jones gave Brandy in large quantity, with Hoffman's Anodyne, and contended that it was not only successful, but the most successful

practice known. Opium and stimulants have been employed by many physicians with moderate success, though the treatment will not reach difficult cases. I have used the combination of Gelsemium, Opium, and Veratrum first named, with good success in cases not very severe, though it fails in the worst form of the disease. Tincture of Digitalis has been very highly recommended, and from my experience with it, I am inclined to believe it one of our best remedies. It is given in very large doses from 3j to 3ss, every three or four hours, until the patient becomes quiet and sleeps.

The warm bath is usually very efficient, and I have known patients to go to sleep in the bath, who had been beyond all control, except by force; it may be associated with the other means named. If there is nausea, and especially if the remedies given are thrown up, an emetic should be administered, and the stomach thoroughly evacuated. In some cases it is well to evacuate the bowels with the Compound Podophyllin Pill, and the secretion of the skin may be started by the administration of Tincture of Asclepias, with Carbonate of Ammonia. I have cured cases of delirium tremens with the warm bath, Podophyllin Pill, and Asclepias and Carbonate of Ammonia, when Opium and stimulants had failed. In very severe cases, we would place the patient under the influence of Chloroform, and continue it until natural sleep was the result. When other remedies fail, we are enabled to manage the disease with anæsthetics, until we can get the desired action from medicines. As the excitement is subdued, it becomes important to give the patient food in such form that it may be appropriated by the enfeebled digestive organs; animal broths and milk are usually best adapted to the case, and should be given at first at regular intervals if the patient has no appetite, as is generally the case. Very frequently the restlessness depends more upon a lack of nutritive material and consequent exhaustion than it does upon disease; and as soon as the stomach appropriates the proper amount of nourishment, the excitement subsides and sleep results. Quinia and Hydrastin may be given for the purpose of stimulating the stomach and inducing a desire for food, and in the later stages of the disease is very successful.

CHOREA.

This affection, known commonly as *St. Vitus' Dance*, occurs most generally about the age of puberty, though it sometimes appears as early as the sixth or eighth year, and as late as the thirteenth, and in some cases later than this. It is confined principally to the female sex, but in rare cases it is met with in the male. Most generally it is associated with some derangement of the sexual organs, and it is not unfrequently associated with hysteria. We usually find it in persons of feeble health, and preeocious mental development, but in some cases, in persons of the opposite character, in which it may be induced by torpor of the liver and bowels, deranged secretion of the skin and kidneys, and from close confinement or sedentary occupations.

The modern disease received its name, doubtless, from the dancing maniaes of the middle ages. The "dancing plague" or *St. Vitus' dance*, commenced in Strasburg, in 1418, and is thus described by Burton: "Chorus Sanctæ Viti, the lascivious dance as Paracelsus calls it, because they that are taken with it can do nothing but dance till they are dead or cured. It is so called for that the parties were wont to go to *St. Vitus* for help, and, after they had danced there awhile, they were certainly freed. 'Tis strange to hear how long they will dance, and in what manner, over stools, forms, tables; even great-bellied women sometimes (and yet never hurt their children) will dance so long that they can stir neither hand nor foot, but seem to be quite dead. One in red clothes they can not abide; music above all things they love; and therefore magistrates in Germany will hire musicians to play to them, and some lusty, sturdy companions to dance with them."

Another form of the dancing mania termed *St. John's Dance*, commenced in 1374, and extended over the greater portion of Europe. "At Cologne the number possessed amounted to more than five hundred, and at Metz the streets are said to have been filled with eleven hundred dancers. Peasants left their ploughs, mechanics their workshops, housewives their domestic duties, to join the wild revels, and this rich commercial city became the scene of the most ominous disorder; secret desires were excited and too often found opportunities for wild enjoyment; and numerous beggars stimulated by vice and misery, availed themselves of

this new complaint to gain a temporary livelihood. Girls and boys quitted their parents, and servants their masters, to amuse themselves at the dances of those possessed, and greedily imbibed the poison of mental infection. Above a hundred unmarried women were seen roving about in consecrated and unconsecrated places, and the consequences were soon perceived; gangs of idle vagabonds, who understood how to imitate to the life the gestures and convulsions of those really affected, roved from place to place seeking maintenance and adventures, and thus, wherever they went spreading this disgusting spasmodic disease like a plague; for in maladies of this kind the susceptible are infected as easily by the appearance as the reality." (Hecker.)

This gives the origin of the name of the affection we are now considering, and though there is no similarity between the ancient and modern St. Vitus' dance, the description just given illustrates the ease with which nervous affections of this kind may be propagated. And it is a fact, proven by numerous instances in hospital practice, that attacks of hysteria, epilepsy, and chorea will be excited by witnessing the malady in another.

As regards the pathology of the affection, we must conclude that there is an irritation of the true spinal cord, arising sometimes from debility, and at others from extrinsic causes of irritation. In either case the excitation of the nervous system is indicative of debility, rather than strength, and in many cases is based upon feeble nutrition of the nerve substance.

SYMPTOMS. — The first evidences of chorea are occasional involuntary movements of the hands and facial muscles, and an inability to sit quietly in one position. Very frequently the fingers are quickly and involuntarily moved, and when the patient uses the hands it is with a quick unnatural movement. As the disease progresses the involuntary movement becomes continuous, some part of the body being constantly in motion, and the movements are now very much exaggerated. If the patient attempts to do anything, she seems to have but partial control over her muscles, and while they are being directed to the end intended, they are going through a succession of movements entirely independent. So great is this, sometimes, that the patient can not sit still, nor keep the hands quiet for a moment, and her walking is irregular from

the same cause. The facial muscles are sometimes very much involved, and the attempt to speak, or give expression to the emotions, is followed by various contortions of the countenance, which would be laughable were they not connected with so serious a malady. Sometimes it is almost impossible for the patient to express herself intelligibly, owing to spasmodic action of the muscles of the mouth and of the larynx.

As before remarked, the general health is usually impaired previous to the commencement of the disease, and this becomes more marked, as it progresses; symptoms of anæmia are of common occurrence, the skin being blanched, the pulse feeble, the lips and gums pale, variable appetite, imperfect digestion, and constipation of the bowels. The mind is more or less affected, the patient being low-spirited, and desiring solitude, the countenance being pale, languid and vacant. In some instances confirmed chlorosis will be developed during the progress of the disease. It will be noticed, that the child has no disposition to play or to take exercise, and does not desire to associate with others, but prefers rather to get where her infirmity will not be noticed; the sensitiveness in this respect being sometimes very great.

DIAGNOSIS.—Chorea is marked by such distinctive symptoms that it is easily recognized, the continual partly voluntary and partly involuntary movements not being observed in any other disease.

PROGNOSIS.—Though in some cases very obstinate, the disease is almost always curable. It may last for two or three weeks, or, as many months, and in some rare cases for years. Usually it disappears as the general health is improved.

POST-MORTEM EXAMINATION.—In fatal cases the evidences of anæmia are usually very marked, the tissues very pale, soft, and flaccid. The different organs have been found more or less diseased, but these were complications and bore no relation to the spasmodic action. We would expect to find lesions of the brain and spinal cord; but except in those cases terminating in general convulsions, or in inflammation, no change of structure has been noticed.

TREATMENT.—Various plans of treatment have been adopted, and many remedies used as specifics in this affection, and as is usual, we find that where the means are so abundant, they are not very efficient. We had much better adopt a rational plan of treatment, by correcting any dyscrasia, and getting a

normal performance of the various functions of the body, rather than depend upon any one remedy, no matter how highly it is praised. Derangement of the digestive apparatus is usually prominent and its correction is frequently followed by speedy recovery. Thus in many cases we will commence the treatment by the administration of a thorough emetic, which may in some cases be repeated with advantage once or twice a week. This should be followed by a mild cathartic of Podophyllin, Leptandrin and Extract of Hyoscyamus, in doses sufficient to move the bowels once or twice daily, until recovery is complete. Associated with this we would give a bitter tonic, as Quinia, Hydrastin, āā , 3ss; Extract of Nux Vomica, gr. ij; Extract of Macrotys, q. s; make thirty pills, and give one four times a day. A preparation of Iron is almost always necessary, and we may use the Prussiate, Carbonate, or the Ammoniated Tartrate, which has been very highly recommended. In all cases we employ the bath to sustain a normal action of the skin, and for its general influence; I have obtained better results from the Salt water sponge bath, with brisk friction, especially of the entire length of the spine, than from any other means.

If the disease is associated with amenorrhœa, or irregularity of the menstrual function, this must be attended to. In some cases the emmenagogue pill of the Dispensatory, will prove useful, both as a cathartic and for its action on the uterus. The Wild Ginger is another agent that will prove useful in some of these cases. The Macrotys or Cimicifuga is a very valuable remedy, especially in cases where the patient complains of wandering pains in various parts of the body, or pain in the back and limbs. We sometimes associate it with Valerian or Scutellaria, and sometimes with the bitter tonics. The Extract of Indian Hemp has been employed with benefit, in doses of half a grain three times a day, and good results are said to have attended the administration of small doses of Stramonium. The Sulphate and Oxide of Zinc have been prescribed oftener possibly than any other agents, and we must believe from the favorable reports given that they have an action in these cases; these remedies may be given commencing with half grain doses four times a day, and gradually increased until five or ten grains are administered.

If there is tenderness on pressure over the spinal cord, counter-irritation will often prove very efficient, and the same will

be the case when there is tenderness on pressure over the epigastrium. Electricity has been frequently resorted to in chorea, and the reports of its action differ materially. When passed through the limbs it is not only useless, but sometimes positively injurious, but when applied to the back alone it is almost always beneficial. The common electro-magnetic machine may be employed, the negative pole being applied to the sacrum, and the positive passed backward and forward over the spine. The better plan however, is to insulate the patient, and by the old fashioned electric machine, charge the patient and withdraw the spark from the back. In one case lately I have employed the Bromide of Ammonium in addition to the tonic treatment first named, and seemingly with marked benefit, though one case no more demonstrates the curative action of a remedy, than that one swallow makes a summer.

Very much will depend upon the home management of the patient. All causes of irritation must be carefully avoided, and she should be encouraged to take suitable exercise, and try to control the involuntary movements. Out-door exercise, pleasant company, and something to constantly occupy the mind with, exerts an important influence, and it will sometimes be found that where the patient is allowed to have her own way, if not decidedly improper, she will get along better. In some cases the disease results in both male and female, from sexual excitation and onanism; this should be looked into, and if reasonable evidence exists, means should be employed to put a stop to it. The manner of doing this will have to be left to the discretion of the physician, and will vary in different cases.

HYSTERIA.

(SEE DISEASES OF WOMEN.)

SPERMATORRHEA.

It is not so much on account of the debility of the genital organs and loss of virility, occasioned by loss of semen, that we consider this disease here, but for the serious mental and physical depression that it occasions. The most frequent

cause of spermatorrhœa is masturbation, but it may be occasioned by excessive venery, constant lascivious thoughts, gonorrhœa, diseases of the rectum and bladder, or any cause that will excite and continue an irritation of the genital organs. It comes on slowly as a general rule, and when the result of masturbation may be two or three years in its development. The subject of this vice usually has no idea of what it is leading to, and continues the practice until the frequent occurrence of nocturnal emissions, induces such loss of strength and feebleness of mind as to cause enquiry.

Spermatorrhœa manifests itself in the form of nocturnal emissions, which at first are voluntary and occur under the influence of a lascivious dream, and are attended by the usual feelings, but at last without sensation or consciousness of the individual. In some cases, the discharge may occur when the patient goes to stool, or after micturition, or from straining or lifting, though in very many of these cases where the persons are much alarmed we will find that the discharge is simply mucus from the urethra, prostate gland or bladder. When the habit becomes fully established, the emissions will occur as often as once or twice a week, or in some cases, two or three times in the twenty-four hours.

The seminal fluid is changed in character, being thin, without ropiness, and of a very strong odor.

SYMPTOMS.—The most common symptoms at the commencement of spermatorrhœa is a shyness, inability to look a person in the face, and a desire to avoid company, especially strangers. It is noticed that his general health is becoming affected, he is weak, can not stand prolonged exertion, complains of headache, nervous trembling, palpitation of the heart, and dizziness. The appetite becomes variable, sometimes voracious, but generally poor, the bowels are constipated, the skin pale and sallow, the hands and feet are cold, and he rests badly at night. At a still further advanced stage of the disease, the loss of strength becomes more marked, as does the depression, nervousness in the presence of company, and the other symptoms named. Frequently they will not look any person in the face, if it is possible to avoid it, and shun company as much as possible. The mind now becomes seriously affected; there is loss of memory; he is cowardly; has no faculty for business; and, as Dr. Gross well remarks, "is physically and mentally emasculated." If

it continues it will terminate in epilepsy, insanity or idiocy, and the physical prostration in some cachectic disease, as phthisis, acute hydrocephalus, diabetes, etc.

DIAGNOSIS.—The diagnosis of spermatorrhœa is very difficult, as though some of the symptoms named are very characteristic; there are none but what may be produced from other causes. A careful analysis of symptoms will always lead the practitioner to suspicion spermatorrhœa as the cause, when, with proper care, a full admission, with a complete history of its origin and progress, may generally be obtained from the sufferer. Considerable tact will sometimes be necessary, but usually the conversation and questions can be so guided as to elicit the major part of the information necessary without exciting the patient's suspicions, and when the clue is thus obtained, it is easy to follow it up.

PROGNOSIS.—The prognosis is favorable in a majority of cases, especially if appropriate treatment is adopted early in the disease. There is a class of cases that are beyond the reach of medicine, and will sooner or later terminate fatally. Not unfrequently we find that the patient's mind has been morbidly excited by the reading of advertising disquisitions upon the subject, or by consulting some of the numerous leeches who pretend to make private diseases a specialty. This excites an unnatural fear, and his attention being fixed constantly upon the subject, his imagination is so wrought up, that serious injury to the health ensues, and he will absolutely have many of the symptoms described. Thus, I have seen cases that had followed this course, and who had become seriously diseased both in mind and body, and yet had not at any time had spermatorrhœa.

TREATMENT.—A careful examination of the genital organs should be made to determine the existence of increased sensibility, and with a bougie to determine the existence of irritation of the urethra. In some cases the bowels should be kept open by a mild cathartic and the use of the cold water injection, thus removing a permanent cause of the irritation of those organs. In other cases we will find an irritation of the bas-fond of the bladder, with increased secretion of mucus, and large deposit of the triple-phosphate; this will continue the irritation of the sexual organs in spite of all remedies given for its control, and must be removed if we expect to effect a cure. It can usually be readily accomplished by the

use of a tepid water injection into the bladder, sufficient to thoroughly wash it out, and, in bad cases, followed by an injection of Chloride of Zinc, gr. j, Water, 3j, or the means named under the head of cystitis. Occasionally the use of leeches to the perineum, or counter-irritation, or the warm sitz bath will relieve the increased sensibility. If, on passing the bougie, an irritable point is found, generally in the prostatic portion of the urethra, it should be cauterized with Lallemand's Porte Caustique, the patient using the demulcent diuretics for some days afterwards.

Internally, we frequently employ the Bromide of Potassium, in doses of from three to five grains four times a day, and if there is great irritability of the organs, with frequent erections, we may associate Camphor with it. Certain tonics seem to have an excellent influence in this disease, and as we have to employ agents of this class, we employ them. *Cornus Florida*, *Collinsonia* and *Euonymus*, seem to be especially applicable, and may be associated in the following manner: \mathcal{R} , Essl. Tincture of *Cornus*, *Collinsonia* and *Euonymus*, $\bar{a}\bar{a}$, $\mathfrak{z}\mathfrak{j}$; Bromide of Potassium, 3j; Glycerin, Simple Syrup, $\bar{a}\bar{a}$, 3ij; \mathcal{M} ., and give in teaspoonful doses four times a day. If the prostration is great, I usually employ the *Nux Vomica* and *Quinia* pill, as, \mathcal{R} , Extract of *Nux Vomica*, gr. v; *Hydrastin*, *Quinia*, $\bar{a}\bar{a}$, 3ss; \mathcal{M} ., and make thirty pills, of which one may be taken three or four times a day. In some cases the use of Iron, or Cod-liver Oil, will prove advantageous; and should there be deposits of the lithates or oxalates in the urine, we may use the mineral acids as heretofore named.

It is necessary that the patient should have the disease so explained to him, that the morbid fear that is so frequently noticed shall be removed, and for this purpose we will try to gain the patient's implicit confidence. If this is not done, we will frequently find our remedies unavailing. The patient should be directed to take exercise in the open air, to use a daily bath, confine himself to a nutritious and not stimulating diet, and sleep on a hard bed. An entire abandonment of masturbation, and sexual excitement as far as possible is imperative, and he should likewise be cautioned not to let his thoughts turn to these subjects. There is no doubt but that the will can materially aid in controlling this unnatural excitation, and if possible it should be made to assist in the cure.

"The practice of onanism often engenders a want of confi-

dence in young men, in regard to their ability to consummate the marriage contract. In fact it renders them sometimes temporarily impotent. I have repeatedly known this to be the case after the marriage had taken place, much to the annoyance both of the patient and the surgeon. In general, however, the defect is rather in the mind than in the body, and may be easily corrected by entire abstinence for several weeks, and by the use of a little medicine, such for instance, as a few drops daily of equal parts of Tincture of Nux Vomica, Chloride of Iron, and Cantharides, with the assurance of speedy recovery. In this way, confidence is restored, and the difficulty, of course, soon vanishes. Occasionally the obstacle is caused by too great an eagerness on the part of the individual, or by too frequent indulgence soon after marriage. At other times, again, the erections are imperfect, and the act is prevented by a premature emission. These effects frequently subside of their own accord; when they do not, an attempt should be made to correct them by a judicious course of treatment, especially the use of tonics, the shower bath, galvanism, and attention to the bowels and secretions, aided, if the parts be morbidly sensitive, by cauterization of the urethra, and mildly astringent injections." (Gross.)

HYPOCHONDRIASIS.

Among the most troublesome cases that come under the physician's care, are those which may be classed under the present head, and though they may vary greatly in their symptoms, there is that common to all, which gives them a distinctive character.

Copland's definition, "Chronic indigestion, with languor, flatulency, dejection of mind and fear, arising from inadequate causes; general exaltation of sensibility, a rapid succession of morbid phenomena, simulating numerous diseases, or otherwise a real but variable state of suffering, exaggerated by the morbid sensibility and fears of the patient, with unsteadiness or variability of purpose, and distressing anxiety respecting his complaints." This in a few words expresses a condition in which, in addition to a variable amount of physical disease, we have a marked lesion of innervation, and to some extent of the mind. Some authorities class it with insanity, and there are cases sometimes grouped under this

head, in which the patient imagines himself a tea-pot, or a locomotive, or that his body has so increased in size that he can not get through the door, or has a morbid dread of thieves, assassins, etc., which properly belong to that class.

The causes of hypochondriasis are various. Sometimes a disposition to it seems to be hereditary, making its appearance after middle age from slight exciting causes. It usually results from prolonged mental exertion, or letting the mind dwell constantly on one subject, and especially in persons of sedentary habits.

“Whatever exhausts, or directly depresses cerebral power, as intense application of the mind to difficult or abstract subjects, anxieties respecting schemes, speculations, or objects of ambitious; disappointments, sorrow, fright or sudden alarm; the depraving passions, severe losses of fortune, or friends, indulgence of sombre or sad feelings; devotion to music and the fine arts, reading medical books, etc., and whatever favors congestion of the brain, may cause the complaint.” (Copland.)

SYMPTOMS.—In a majority of cases we find considerable derangement of the digestive organs; the tongue is coated at the base, there is clamminess and bad taste in the mouth in the morning, digestion is attended with flatulence and eructations, and the bowels are constipated. The secretions are deranged; the skin being dry and harsh, or soft, pale and relaxed, with feeble circulation and coldness; the urine is usually copious but deposits the lithates or phosphates. There is marked hyperæsthesia in many cases, the sensibility being so exalted, that the slightest suffering is magnified into intense pain, and there is constant suffering from wandering pains in various parts of the body.

Occasionally the patient seems dull and impassive, brooding over his troubles and diseases, and seems to feel no acute suffering, and is with great difficulty aroused so as to describe his imaginary diseases, answering, that he knows them to be such as are incurable by medicine, and therefore it is useless to describe them. In the one case the patient is always complaining, and evidences of suffering are well marked; in the other it is very evident that the patient is diseased, but he is wrapped up in himself, and constantly brooding over his diseases, rather than complaining about them.

In many cases the patient, notwithstanding the severe character of the symptoms, presents all the appearances of sound

health. "He often complains of violent pains in the temples, forehead, or occiput, or of a general headache, with dimness of sight, and noises in the ears, or of a sense of weight or pressure, more intolerable than pain at the vertex, with giddiness or confusion of mind; and sometimes of a constriction or lightness of the head or temples, or of a morbid sensibility of the scalp and roots of the hair. Occasionally the senses are morbidly acute, and intolerant of light and noise. Pains resembling rheumatism, or those of syphilis, are felt in various situations, occasionally with a feeling of burning or heat, and sometimes of coldness, horripilations, cramps, feebleness, or threatened paralysis of one or other of the extremities. Weakness of the limbs, unsteadiness in walking, or feebleness of the joints (in some instances with neuralgic pains) and great susceptibility to cold and heat, are not unfrequently complained of. The morbid sensibility of the hypochondriac is generally increased by a cold and humid state of the atmosphere, by easterly winds, and by very warm seasons. His mind is incapable of exertion or prolonged attention, although when aroused, he may be lively and acute; but he soon becomes engaged in his own feelings and sufferings. To these he frequently recurs in conversation, whenever he has an opportunity of doing so, although he seems to suspect that the subject is unpleasant to those who listen to him, and therefore suppresses a part of his complainings. In some cases there is dyspnoea, constriction of the chest, with a dry, short, or spasmodic cough, and occasionally a sense of suffocation or constriction is felt in the throat, with flatulence and various other symptoms resembling those attendant on hysteria. These phenomena have induced several writers to consider the disease closely allied to hysteria, and the severe palpitations, or irregular action of the heart, frequently also complained of, have further countenanced the idea; while they have excited the anxiety of the patient and induced him to believe himself the subject of irremediable disease of the heart; sleep is sometimes materially disturbed, and occasionally the hour of repose is ardently looked for; but in other cases it is dreaded as aggravating the distress. The patient is often tortured with the most distressing feelings, which are greatly aggravated by his fears. He dreads impending dissolution, from the symptoms referred to the head, heart or chest. His ideas are concentrated on himself and his feelings, and he is incapable

of attention or mental exertion, unless by circumstances of unusual interest or moment. Occasionally vertigo, dimness of vision, and intolerance of light and noise, are so great as to justify his fears; and the pains in the head, or the sensation of pressure on the head and temples, are so severe, that the eyes seem starting from their sockets." (Copland.)

DIAGNOSIS.—The diagnosis requires considerable care, as all of the symptoms named as occurring in hypochondriasis may be occasioned by real diseases. Our suspicions are generally excited by the expressions of severe suffering in slight disorders, and by the little constitutional disturbance occasioned by the grave affections that the patient would seem to have. A close examination will detect that the diseases complained of, do not exist at all, or if they do, in a form that would not give rise to the symptoms complained of. This is especially the case as regards diseases of those organs that may be examined physically, as the heart, lungs, etc. And in other cases the diagnosis is confirmed by the frequent shifting of the disease from one part to another, and the speedy disappearance of what had seemed to be structural disease.

PROGNOSIS.—In the early stages of hypochondriasis we may give a favorable prognosis, as in a very large majority of cases, proper medication, if we can gain the confidence of the patient, will be attended by a speedy cure. In cases, however, which have lasted for years, we will be guarded in our opinion, as many of them can not be relieved, and the patient's confidence is best gained by holding out inducements of cure, as he seems to gain under the treatment.

TREATMENT.—It is necessary that we carefully analyze the symptoms of the case, and determine as near as possible the exact nature of the functional lesions present, and their extent, and proceed to remove them seriatim. In many cases, we will give attention first to the digestive organs, removing torpidity of the stomach, increasing the power of digestion, and overcoming constipation. An emetic administered once or twice a week until the coating no longer forms on the tongue, and the bad taste of the mouth and fetid breath disappears, is sometimes attended with the most marked beneficial results. The Compound Powder of Lobelia and Capsicum in infusion will be the best remedy for the purpose and should be so used as to thoroughly evacuate the stomach. It is especially indicated in cases where the tongue

is coated at the base, with a bad taste in the mouth, slight nausea, and fetid breath. It may be followed by a purgative, as, R, Podophyllin, gr. xx; Aloes, ʒj; Extract of Nux Vomica, gr. v; Hydrastin, ʒss; Extract of Hyoscyamus, q. s.; M., and make forty pills, of which one may be given two or three times a day, so as to open the bowels once or twice daily. An alkaline diuretic as the Acetate or Citrate of Potassa, and the daily use of the salt bath, with brisk friction, will sometimes complete the treatment. Very frequently a succession of tonics, stimulants and chalybeates will be required, for one will lose its effect in a few days or weeks, and will have to be replaced by a new one. Keeping the secretions free, is only next in importance to maintaining the digestive organs in proper condition, and we will here derive marked benefit from remedies directed to the kidneys, and from the use of various baths as may be indicated by the condition of the patient. I have seen most marked advantage result from the use of the warm bath followed by cold affusion and brisk friction, and in some cases from cold affusion alone, or directed principally to the spine. Occasionally when the skin is relaxed and flabby, much benefit is derived from the tonic and astringent baths heretofore named.

In those cases attended with symptoms of heart disease, but without structural change, and which undoubtedly originate from derangement of the stomach, we will find no better agent than the Collinsonia. I have frequently associated it as follows: R, Essl. Tincture of Collinsonia, Essl. Tincture of Asarum, āā, ʒij; Simple Syrup, ʒiv; M., and give in teaspoonful doses every four hours. We may occasionally add to it the Tincture of Xanthoxylum, or the Tincture of Nux Vomica. The Prussiate of Potash will sometimes prove beneficial in this case, in doses of from three to five grains four times a day. If there is difficulty of breathing and feeling of oppression, with a dry, hacking, troublesome cough, and especially if it causes restlessness at night, I prefer the Tincture of Drosera, in the proportion of fʒij to Water, ʒiv, in doses of a teaspoonful four or five times a day. The Tincture of Verbascum will likewise prove efficient in these cases. If there is troublesome pains in the head with dizziness, and feeling of tension, in addition to the Acetate or Citrate of Potassa, which are sometimes sufficient, we may give the Tincture of Jeffersonia in doses of a tea-

spoonful every three or four hours, and may expect marked benefit from its use. If there is urinary deposit, this should be examined by the microscope, and its character determined and the treatment necessary in the case adopted.

It is very essential that we shall obtain the confidence of our patient, inasmuch as it enables him to rid himself of much of the burthen of watching his symptoms, and of taking those precautions to ward off disease, that have hitherto occupied so considerable a part of his attention. The mind thus relieved may be directed to other objects, and in a short time will get into a new channel, much to the patient's benefit. If the patient's confidence is not gained, no good will result from any treatment; change of scene is often advisable, and traveling is frequently productive of great benefit. Watering places may be recommended, if from the character of the patient we think he will enter into the amusements of the place, if not, continuous traveling is better. Dr. Gully remarks, "that the mental distractions accompanying the participation in exciting social scenes, the vigorous exertions of the voluntary power employed in strong muscular exercise, and the shocks given to the entire nervous system, are always beneficial in this complaint. The hypochondriac should be persuaded to the exertion of his volition in active muscular exercise, he does not lack muscular power, but he wants the mental energy necessary to its exertion. He should always ride or walk before his meals, rise early, and take half an hour's exercise in the open air before breakfast. His mental faculties, also, should be entirely engaged, on matters alien to his personal health. His imagination should be aroused and directed to other subjects."

NEURALGIA.

Neuralgia should be considered as a morbid exaltation of the sensibility of nerves, sometimes the result of determination of blood, but more frequently without perceptible change. We have already noticed some of these affections, and may group the remainder together in this article. It may attack any portion of the body, and runs in the course of the sensitive nerves, some parts seeming to be more susceptible than others. The predisposing causes are usually such as enfeeble the body,

and cause excitation of the nervous system; the most frequent exciting causes are damp and cold, though it may result from excessive emotional excitement, and as we have already noticed, from malaria. It is not confined to external parts, but may affect any of the internal organs, being most generally associated with slight structural disease.

Neuralgia is sometimes preceded by a sensation of formication, or numbness, and sometimes by soreness and stiffness. The pain usually comes on gradually, is at first obtuse and aching, but as it continues becomes sharp, lancinating, darting and lacerating. Sometimes it seems to be confined to the one spot, but at others it shoots along the course of the nerve, either in the direction of the trunk, or the extremities, or seems to dart through the part in a direction opposite to the course of the nerves. The pain is usually very intense, so much so, sometimes, that the patient screams with the agony, and in very severe cases becomes unconscious or maniacal from the intensity of the suffering. Occasionally we notice other disturbances of the part, as twitchings and involuntary muscular movements, and derangements of function, and in rare cases seeming paralysis. The constitutional disturbance varies greatly in different cases, depending upon the severity of the disease, and its duration; in common cases, when it has continued for twenty-four hours or more, we find an excitement of the pulse, dry skin, constipated bowels, coated tongue and loss of appetite, the patient complaining that the extreme suffering has made him sick; in protracted cases, the health suffers very much, the patient becoming feeble and anæmic, and troubled with various functional derangements.

Neuralgia faciei, facial neuralgia, is one of the most common forms met with, and when persistent and severe, has received the name of *tie douloureux*. It may have its origin in irritation of the dental branches of the fifth pair of nerves, from caries of the teeth, or may result directly from cold, atmospherical vicissitudes, or the other causes named. It usually commences as a soreness in the course of the nerves, with slight twitching pain, but when fully developed, is sharp, lancinating and tearing. It may be confined to either of the branches of the fifth pair, affecting the eye and parts supplied by the first branch—or those situate over the superior maxillary bone, and supplied by the second branch—or those over the inferior maxillary, and supplied by the third branch.

There are other cases in which these entire structures seem to be involved, the pain being confined to the terminal extremities of the nerve. In others again, the pain is deep seated, situate in the course of the infra-orbital nerve within the infra-orbital canal, or in the course of the mental nerve as it passes through the inferior maxillary bone, or deep seated in the superior maxillary in the course of the dental nerves.

It sometimes requires considerable care to diagnose these cases, as such pain may sometimes result from inflammatory or other diseases. We may diagnose neuralgia from structural disease of the eye by the fact that in the latter there is great susceptibility to light, disordered vision, and constitutional disturbance. In disease of the antrum, or superior maxillary bone simulating neuralgia, the pain is frequently tensive and throbbing, and close examination will almost invariably detect enlargement or deformity; this is the case also in disease of the inferior maxillary. It is impossible to determine the existence of disease in the course of the trunk of the fifth pair until it passes from the cranium, and of the nerves when deep seated, and we will have to be guided in great part by the evidences of constitutional disturbance.

Neuralgia of the back is not of frequent occurrence, but is sometimes very severe. The pain is lancinating and darting, and frequently extends outward in the course of the nerves passing from the spine. Thus, in the cervical region it extends to the shoulder, and frequently to the arm, and is sometimes attended with tonic contraction of muscles, producing torticollis. In the dorsal region it may be confined to the spine, but more frequently extends to the intercostal nerves, and is sometimes very severe. It is very difficult to distinguish neuralgia of the lumbar region from lumbago, and as the treatment differs but slightly, it makes but little difference.

Neuralgia of the lumbar nerves is sometimes met with, and is usually recognized by the course of the pain, as more than one branch is usually affected, and the pain is confined closely to the track of the nerve. Thus, we will find it in the course of the three cutaneous branches, as the spermatic, genito-crural, or extending downward in the course of the crural as far as the knee-joint, or even the foot. Neuralgia of the hip-joint, the pain being located in front, under the psoas, belongs to the same class.

Neuralgia of the sacral nerves is of very frequent occurrence,

and is usually associated with some disease of the genito-urinary organs, or rectum, though it may be but slight. A very common place for the pain to point is near the rectum, and here it gives rise to the most exquisite suffering; at other times it seems to affect the entire perineum, or is confined to the pelvic viscera, or is located in the symphyses. Among the most troublesome and persistent forms of neuralgia is that of the hip-joint, which is associated with sacral neuralgia; the pain in this case is principally in the gluteal muscles, and those of the posterior aspect of the thigh.

Sciatic neuralgia is a very common form of the disease. It usually commences between the great trochanter and the ischium, extending downwards in the course of the nerve to the popliteal space, and in some cases along the anterior and posterior tibials to the feet. The pain is very acute, and its occurrence usually sudden, though sometimes it is preceded by painful tinglings, slight numbness, or chills and formication. It is usually remittent, the exacerbations occurring in the afternoon and evening, or sometimes several times a day, and occasionally attended with constitutional symptoms, owing to the severity of the sufferings. Motion increases the pain, and sometimes brings on a violent exacerbation. In some cases, when the disease continues for a long time, or occurs frequently, the limb becomes wasted and partially paralyzed.

Neuralgia may occur in any part of the course of this nerve or its various branches. A very severe and troublesome form of it is met with in the foot, or in both feet, and is most generally associated with tuberculosis, or other cachectic affection. Neuralgia of the knee-joint is usually associated with that of the crural nerve.

Neuralgia of the upper extremities is not so common as the lower, still it may occur and is very intense. The ulnar nerve seems to be the most frequent seat, the pain being acute and darting along the main trunk. Occasionally it seems to be confined to the wrist, and the articulation of the metacarpal bone of the thumb, and at other times it affects the cutaneous nerves and the elbow joint. Chaussier states, that the ulnar or cubital nerve is the one most frequently affected, and that the pain is generally seated in that portion of the nerve situated between the olecranon and the internal tuberosity of the humerus. The temperature of the arm is increased, and in very severe fits the patient experiences much anxiety,

and often holds the arm up and grasps it forcibly with the other hand.

Neuralgia of the muscles and membranous structures is not of common occurrence, and will be difficult to distinguish from rheumatism. But in true neuralgia of muscles, the pain is much more acute than in rheumatism; recurs in frequent exacerbations, and is rarely or never altogether absent in a dull or numb form. "In all the cases I have seen, the remissions were attended by weakness or partial palsy of the muscles affected; and the complaint was symptomatic of organic lesion in either the brain or spinal cord; an apoplectic, epileptic or paralytic attack, generally occurring after longer or shorter periods. A lady from Gravesend, consulted me a few years since for neuralgic pain of the muscles of one side, and particularly of those of the shoulder and arm of that side. After many months of suffering, maniacal delirium and palsy supervened, several large tubercular formations were found in the brain after death; indeed, as Dr. Seymour has very justly insisted, these severe neuralgic pains in the muscles or limbs should always lead to suspicion of the existence of softening or other organic lesions or formations in the substance of the brain."—(Todd.)

Visceral neuralgia, is a not uncommon affection, and may affect any organ. We have already noticed neuralgia of the heart, and have seen that it not only occasions the most severe suffering, but frequently terminates fatally. Neuralgia of the pleura is possibly the most common form of the visceral disease, and is marked by sharp lancinating pain, simulating pleurisy, from which it is distinguished by the absence of constitutional disturbance. It gives rise to difficulty of breathing and cough, the same as the inflammatory disease. We have already noticed its frequent occurrence in the early stages of phthisis. Neuralgia of the stomach, has been noticed heretofore, and is a very distressing form of the disease; while the different forms of colic illustrate neuralgia of the bowels. The kidneys are sometimes the seat of neuralgia; sharp lancinating pains occurring in the loins and darting downward in the course of the ureters, and sometimes as far as the testicles. The pain is not accompanied by constitutional disturbance, and neither is there much derangement of the urinary secretion, the only means we have of making a diagnosis. Even this is unsatisfactory, as to the presence of renal calculi, and

their passage through the ureter will give rise to the same symptoms.

According to Copland, "It is extremely probable that several anomalous painful affections, occurring in paroxysms of extreme agony, which can not be referred with precision to a single part or organ, but which affect the *diaphragm, stomach, heart,* and their vicinity, or either of them more or less prominently, are actually instances of neuralgia of the nerves of association, and the ramifications of them, particularly of the pneumogastric and phrenic nerves. Several of those affections have been considered as instances of angina pectoris; but, though nearly allied to that affection, they are more correctly instances of neuralgia of those nerves, the phenomena characterizing individual cases, varying with the ramifications specially affected, and with the associated affection of the ganglial nerves frequently accompanying them.

DIAGNOSIS.—Usually we have little difficulty in determining the character of the disease, though sometimes it is almost impossible. The sharp and lancinating character of the pain, darting along the course of the nerve, is more or less distinctive, and if we associate this with the almost complete absence of constitutional disturbance, and evidence of local disease, we will come to the conclusion that it is neuralgia. Pressure almost always eases the pain, instead of increasing it as in other affections, and we observe no redness and heat, and but rarely swelling, and this confined to the face, or to the leg in sciatica.

PROGNOSIS.—In recent cases the prognosis is favorable, the disease generally yielding readily to the action of proper remedies. In some cases we will not promise speedy relief, as in those cases of severe facial neuralgia, called *tic*, and in neuralgia of the back, and of some of the viscera. In some chronic cases we will have to be very guarded in our prognosis, for sometimes they are beyond the reach of remedies, or even of surgical aid. It may in severe cases terminate in convulsions, and as we have already seen, when it was general, affecting the muscles, the brain was almost always affected.

TREATMENT.—The treatment of neuralgia should be both general and local, and contrary to the generally established practice we find that the first is far more successful than the last. In many such cases, and especially if indicated by the condition of the stomach, we find that an emetic will give the

quickest and most decided relief and will pave the way for a speedy cure. I use the Compound Powder of Lobelia and Capsicum in infusion, and give it so that a couple of hours will be occupied in its action. The patient should have his feet bathed in hot Mustard-water, and be covered warmly in bed, and take freely of some diaphoretic infusion, as of equal parts of Essl. Tincture of Asclepias, and Compound Tincture of Serpentaria, in doses of a teaspoonful every hour, or of equal parts of Diaphoretic Powder and Asclepin, in doses of five grains. Free perspiration is in this way induced and the patient often falls into an easy sleep, the first he has had for several days. In other cases we may accomplish the same object by the use of the wet sheet pack, and the internal use of cold water, and an alkaline diuretic.

If the bowels are constipated we would employ a cathartic, for the removal of obstructions and for the purpose of derivation, Podophyllin and Leptandrin with Extract of Hyoscyamus or Indian Hemp, as heretofore recommended will answer the purpose well, and may frequently be continued every day until the patient is completely relieved. Great advantage is obtained in the more persistent cases from the continuous use of the alkaline diuretics, and sometimes from the Iodide of Potassium; the Macrotys is also a valuable remedy. We might associate them as follows, \mathcal{R} , Iodide of Potassium, Extract of Conium, āā , $3j$; Tincture of Macrotys, $f3j$; Water, $3ij$; $M.$, and give a teaspoonful every three or four hours. Tincture of Gelsemium is a valuable remedy in some cases, and may be given until its specific effects are manifested. Sometimes preparations of Guaiacum are useful, especially in the more chronic forms; I would prefer the alkaline tincture, and associate it with a small quantity of Wine of Colchicum. The English Wine of Colchicum seed may be given in doses of from ten to thirty drops every three hours, and gives better results if combined with full doses of the Tincture of Asclepias; Aconite has been employed internally with reputed advantage, but I have not been able to obtain satisfactory results with it. Belladonna in doses sufficient to produce dilatation of the pupil will occasionally relieve the pain as will also the Valerianate of Zinc. Strychnia is recommended with Phosphoric Acid, two grains of the first to one ounce of the last, the dose being five drops three or four times daily.

In very many cases we find that the disease is markedly periodic, and in others though the symptoms may be obscure, close observation will detect periodicity. In these cases we administer Quinia in full doses, giving it as we would in a case of intermittent or remittent fever. The medium quantity in the case of a stout adult would be fifteen grains in three doses; if given in small doses it has no appreciable influence. It is claimed by some that Prussiate of Iron exercises a marked influence over neuralgia, and that it aids the Quinia in its action; if so, we will find the old fashioned blue powder the best form in which to administer it. We may use with it the Tincture of Valerian and Gelseminum in the usual doses, and between the times of giving it, a solution of Acetate of Potassa. The Prussiate of Potash in solution to the extent of from three to five grains four times a day, is frequently useful in obscure neuralgic affections. The local applications made use of vary greatly, being sedative, stimulant, narcotic, emollient, etc., according to the whim of the prescriber. Chloroform and Aconite are probably the most efficient agents we can use when the neuralgia is superficial, as in the case of the face. I use the agents combined in equal parts, and to such an extent as to produce the peculiar numbness of the tongue, characteristic of the action of Aconite upon the system. If we desire a stimulant influence in addition, we may add an equal quantity of Oil of Sassafras and Alcohol. If a deep seated part is affected, as in case of the sciatic nerve, we will find *firing*, or the application of a hot iron to the surface in the course of the nerve, one of the best applications. The strong Ammonia Liniment applied on flannel so as to nearly blister the part is sometimes very successful. The Extract of Tobacco has been successfully used as a local application, as has also the Emplastrum Belladonnæ. The irritating plaster continued until it produces suppuration, is very good treatment in some chronic cases.

In cases of visceral neuralgia, we may employ hot fomentations of Hops, Polygonum, or Stramonium, and frequently with the most marked relief. At other times, cold applications will be better, and in other cases we gain the most from the free use of rubefacients, and sometimes from the application of cups.

In severe cases of superficial neuralgia, and even sometimes when deep seated, we may employ Cazenve's Neuralgic Pom-

ade, as, R, Chloroform, 3iv; Cyanide of Potassium, 3ijss; Axunge, 3ijj; Wax, q. s., to give it consistence: this may be thoroughly rubbed into the part, and covered with a piece of oil-cloth or bladder. If these various means fail, we may resort to hypodermic injections, the solution of Morphia, gr. v, to Water 3j, being the best; from ten to twenty drops of this may be thrown into the cellular tissue of the part with a hypodermic syringe, and repeated as often as necessary. Acupuncture is sometimes of advantage, the needles being introduced through the part in various directions, and run through the nerve if large. Electricity will sometimes give marked relief, if passed from the peripheral extremities in the course of the nerve trunk. We may use the electromagnetic machine for this purpose, but in general the continued galvanic current from Grove's cups will be found better.

In some cases, section of the nerve is the only feasible method of giving relief, and will sometimes be successful when all other means have failed. Of course it is only applicable where the nerve is superficial, and the pain distinctly localized, as in cases of neuralgia of the supra-orbital, infra-orbital, or terminal branches of the mental nerves. Simple incision will not answer the purpose, as the pain returns sometimes in a few hours. A section of the nerve must be removed, and as it is never renewed, there will of course be permanent paralysis of the parts supplied by it. In cases of neuralgic ulcer, having determined the most painful part, an incision so as to cut off the nervous supply will be followed by cessation of the pain and speedy healing of the ulcer.

In other instances the neuralgia depends upon disease of a distant part of the body, and will not yield until that is cured. Thus cases of facial neuralgia have been found to depend upon ulceration of the cervix uteri, hæmorrhoides, or fissure of the rectum, and though resisting all the usual remedies, has readily yielded when the primary affections were properly treated.

PARALYSIS.

Paralysis, or as it is more popularly termed palsy, is the abolition or great diminution of the voluntary motions, or of sensation, in so far as they are related to volition or con-

sciousness. It is but a symptom of disease, and not the disease itself, as is generally imagined, and hence must be studied with reference to the lesions which produce it. It may be produced by causes arresting the production of nervous force in the brain, or its propagation from it; from those arresting generation of nerve force in the spinal cord, or most frequently its transmission through it; and lastly by changes in the track of a nerve that will obstruct its function, or by disease of the nerve itself. Thus we have three distinct forms: 1st. Paralysis from disease of the brain, or its envelops. 2d. Paralysis from disease of the spinal cord, or its envelops; and 3d. Paralysis from disease of the nerves, or parts adjacent to them.

“What are the causes which may give rise to paralysis? They are either an affection of the nerve or nerves, where power is destroyed in some part of their course, or a morbid state of the center in which the nerve or nerves are implanted, with which they may be less directly connected. The nervous trunks themselves may be impaired in their nutrition, the centre being healthy, or they may have suffered some mechanical injury from violence or pressure; thus either they become imperfect conductors of the nervous force, or they are rendered altogether incapable of propagating it; or some portion of the center of volition is the seat of a morbid process, whereby the influence of the will on certain parts is suspended, and thus the nerves of those parts receive no impulse at all from that center, whether mental or physical, and although perfectly healthy in themselves, are incapable of taking part in voluntary acts.”

“Whatever interferes materially with the conducting power of nerve-fibre, or the generating power of the nerve vesicles (gray matter) will constitute a paralyzing lesion. Thus, in the first place, poisoning of the nervous matter will operate in this way. Soak a portion of the nerve of a living animal in Chloroform, or Ether, or Opium, and it will fail to propagate the nervous force, as long as the influence of the poison lasts. In a similar way, the poison of lead in the living system may paralyze by weakening the conducting or generating power of the nervous matter. Poisons formed in the living system may operate in the same way; such as retained urinary or biliary principles, or the poison of rheumatism or gout. Secondly, any morbid process which greatly impairs the nat-

ural structure of nerve matter will paralyze. Thus, inflammation will do this; so also will atrophy, or wasting from want of sufficient supplies of nutritious matter, as when the flow of blood is lessened or cut off. The opposite conditions of hardening and of softening of nervous matter, become paralyzing lesions for the same reason, that they greatly impair or destroy the nerve structure. Thirdly, a solution of continuity of nerve-fiber will paralyze. Cut a nerve across, and you have immediate palsy of the parts which the nerve supplies below the section. This solution of a continuity from a melting down of the fibers is, I have no doubt, the frequent cause of sudden paralysis in cases of softening, or in cases of sanguineous effusions. Fourthly, pressure on a nerve or nervous center will paralyze; of this we have many proofs as regards nerves; a nerve, for instance, included in a ligature or compressed by a tumor, is paralyzed thereby. A fracture of the skull with depressed bone will paralyze, if the brain be sufficiently compressed; an apoplectic clot on the exterior of the brain paralyzes by compression; so also a tumor in its substance. It is probably by compression that congestion paralyzes; but you will, I think, find that this can not often be regarded as a paralyzing lesion."

"I would say that the center of volition is of very great extent; it reaches from the corpora striata in the brain down the entire length of the anterior horns of the gray matter of the spinal cord, and includes the locus niger in the crus cerebri, and much of the vesicular matter of the mesocephale, and of the medulla oblongata. Disease of any part of this center is capable of producing paralysis; but as the intra-cranial portion of it exercises the greatest and most extended influence in the production of voluntary movements, so, disease of this portion gives rise to the most extended and complete paralysis. Another fact which I would impress upon you, is, one which anatomy in a great degree demonstrates, and which pathological research confirms, that the center of volition for either side of the body, is not altogether on the same side of the body. Of the center for the left side of the body for instance, the intra-cranial portion is on the right side, and these two portions are brought into connection with each other through certain oblique fibers from the anterior pyramidal columns of the medulla oblongata, which cross from right to left, decussating with similar fibers proceeding from

left to right, which belong to the center of volition for the right side of the body."—(Todd.)

Paralysis from Disease of the Brain. Various morbid states of the brain will give rise to paralysis. The most frequent of these are lesions occurring during apoplexy, the palsy manifesting itself immediately, or in a short time after the attack. It has already been noticed that in many cases of apoplexy there was cerebral hemorrhage and the formation of a clot, and in others there was effusion into the ventricles. In these cases the pressure may be sufficient to paralyze the sensory tracts, and when confined to one side, will produce hemiplegia, or involving both hemispheres will occasion general paralysis. In some cases it seems to affect but a very small portion of the brain—for instance the origin of the portio-dura, or the third pair of nerves, causing facial paralysis or squinting, but these cases are rare. The paralysis is usually [manifest at once, the apoplexy passing off, the patient has hemiplegia or general paralysis. In the rarer cases the apoplectic seizure passes off, but the patient finds that he has not perfect command of the muscles of one side, or it may be only of the face, or of the mouth or tongue causing an impediment of speech, or of vision, or more frequently squinting. With these symptoms there may be a sensation of fullness of the head, with a dull obtuse pain located at one point and fixed. These symptoms may pass off in a few days, being the mildest form of paralysis, but in some they gradually increase, or continuing the same for sometimes a week or more, complete paralysis ensues.

In other cases the paralysis results from chronic structural disease—as the formation of tumors within the cranium, chronic inflammation terminating in suppuration, softening of the brain, atrophy, and deposit of tubercles.

In the first case there may or may not be symptoms denoting cerebral lesion prior to the occurrence of the paralysis. Usually the patient complains of a dull, heavy pain in a circumscribed portion of the brain; or occasionally it may be sharp, tearing, or lancinating. It does not seem to be connected with the many causes that occasion headache, and is sometimes attended with aberration of the senses, unsteadiness of gait, and dizziness. The paralysis is generally sudden, and almost invariably hemiplegic. Chronic inflammation is attended by continual headache, with marked sluggishness

and indisposition to mental or physical exertion. There is sometimes difficulty in controlling the voluntary muscles, impediment in speaking, and involuntary muscular movement. Softening of the brain is sometimes attended with but slight disturbance, especially that form of it that is known as white softening. Usually there is an unpleasant sensation, as dizziness, feeling of tension, dull aching confined to one part, enfeebled mind, indisposition to exertion, and imperfect control over the muscles, and morbid sensations as of formication, etc. It is noticed further, that the general health is failing, though nutrition is but little impaired, the patient being feeble both in mind and body. Usually these symptoms are constant, but in other cases they come on and pass off for a period of months. Red softening is undoubtedly the result of inflammation, and is more acute in its symptoms and more rapid in its progress. Usually the patient complains of a severe tensive pain located in a small spot, so that it might be covered by the finger. There may or may not be derangement of the special senses, or of the voluntary muscles. These symptoms continuing for from one week to one or two months, paralysis is sudden, and usually in the form of hemiplegia, and complete. There are no symptoms marking atrophy of the brain that are distinctive. In some cases there seems to be a gradual loss of power, and dullness of the mind, and the paralysis comes on gradually. In tuberculous deposit, there may not be any symptom indicating the existence of cerebral disease, the deposit being so slow that the nervous substance accommodates itself to the changed condition, until at last, from irritation induced by its presence, determination of blood results, and paralysis is sudden. In other cases, we find it attended with headache, usually periodic, dizziness, derangement of the special senses, and frequent irritation of the stomach.

Inflammation of the brain may terminate in paralysis, by the changes in structure induced by it; it is almost always preceded by coma; this passing off, paralysis is found to be present. In acute hydrocephalus, we not unfrequently notice partial paralysis, or there may be complete hemiplegia. Injuries of the head may give rise to paralysis, either by concussion of the brain, by secondary inflammation, or by pressure in case of fracture of the bones of the cranium.

HEMIPLEGIA.—As hemiplegia arises in a very large majority

of cases from disease of the brain, this will be the appropriate place to describe it. The paralysis embraces just one half of the body from above downward, the lines being very accurately drawn. At first there is usually paralysis of both motion and sensation, but the last usually returns to some extent, or completely in the course of time. In mild cases, the face may be but little affected if any; usually the fifth pair is involved, but the portio-dura escapes, and we have the peculiar baggy condition of the paralyzed side, the face seeming to be drawn to the other side, and from the affection of the tongue and buccinators, there is more or less difficulty in speaking. Dr. Todd remarks that, "It is curious how rarely it happens that the muscles of the trunk, as the intercostals, or the abdominal muscles, are involved in the hemiplegic paralysis. It must be an extensive lesion which will paralyze these muscles. There is, however, a spinal hemiplegia of which this palsy is a prominent feature."

Hemiplegia sometimes arises from epilepsy, the paralysis succeeding a paroxysm. We suppose it to result from a disturbance of the condition of the brain arising from the epileptic paroxysm, and not from sudden structural lesion. "It leaves behind it a more or less exhausted state of the brain; which again, will be most upon that side upon which there has been the greatest previous excitement. This state of exhaustion is very apt to continue as one of weakened nutrition, in which the brain tissue is more or less in the condition of white softening. If the parts involved in this be the convolutions, mental power, memory, perception, suffer; if deeper parts, as the deeper parts of the white matter of the hemisphere, and the corpora striata and optic thalami, then we have hemiplegic paralysis." Spinal paralysis is of very rare occurrence, as will be readily conceived, when we know that the lesion inducing it will have to be very high up, just below the decussation of the anterior pyramids, and exactly limited to one half the cord. This has occurred, but as will be seen, it will be a very rare form of the disease.

A very important point in this disease, as connected with the treatment, is as regards the condition of the paralyzed parts. In some cases we will find that there has been, from the first, complete relaxation and flaccidity of the muscles. In a part of these nutrition seems to be well performed and sensation returns. In others the muscles become atrophied as time

passes, and sensation may not return. In the one case the muscles may be thrown into action by irritation of an extremity, or the use of electricity, in the other no such result is produced. In these cases the cause may be such complete pressure, as from a clot during apoplexy, as will entirely arrest the action of the nerve substance, or from softening or atrophy. In other cases we notice immediate rigidity of certain muscles, others being flaccid. Dr. Todd remarks that it is of most frequent occurrence in the hemiplegia caused by the apoplectic clot, and that it depends upon a state of irritation, propagated from torn brain to the point of inflammation of the nerves of the affected muscles. In others again we will find marked rigidity of the muscles from the commencement, and in these cases we have every reason to believe there is excitation of the brain verging on inflammation. The practical conclusions to be drawn from these conditions is very apparent; while in the one case we may use nervous stimulants and tonics, to call the brain into action, in the other case we employ measures to arrest irritation and prevent determination of blood.

Paralysis from disease of the spinal cord.—Disease of the spinal cord produces paralysis both by arresting the production of nerve force in the gray substance of the cord, but especially by preventing the communication of the affected part with the brain. It almost invariably presents itself as a paraplegia, or paralysis of the lower parts of the body, or in rare cases as paralysis of a certain nerve or organ. Any cause that will result in destruction of the power of the spinal cord to convey nerve force will result in paralysis; hence we find that it is caused by disease of the membranes resulting in effusion or thickening, by which undue pressure is exerted; by inflammation and effusion within the substance of the cord; by white softening, the result of atrophy or degeneration, and by red softening, probably the result of inflammation; by tuberculous deposit within the meninges, or the nervous substance; by inflammation or other disease of the vertebra, giving rise to effusion, or change of position and pressure on the cord; and lastly, from injury, either producing a shock sufficient to destroy the vitality of the cord, or such lesion of the bones as will cause pressure.

The diseased action that induced paralysis may continue for

a considerable period after the paralysis is marked, and then becomes an important element in the disease.

Paraplegia.—Paraplegia may be said to invariably arise from disease of the spinal cord, though as will hereafter be noticed, it does not always indicate structural lesion. In the paragraph above, I have named the lesions of the cord giving rise to paraplegia, and it will be seen that in some it will be instantaneous, and in others it will come on gradually. And that in some the evidences of the disease or condition producing it, will be very marked, and in other cases obscure.

Many cases of paraplegia do not depend upon disease of the spinal cord, but upon some outside irritation, the paraplegia being *reflex*. Thus we observe it in some cases of worms, disease of the stomach and bowels, disease or displacement of the uterus, neuralgia, etc.

The proof that these are the causes of the paralysis, and that it does not depend upon disease of the cord is very plain; in that the removal of the peripheral irritation is followed by a cure of the paralysis, and frequently that as the peripheral disease improves, or becomes worse, there is a like change in the paralysis. These cases are usually temporary and readily yield to treatment.

The seat of the spinal lesion will determine the extent of the paralysis, and its gravity and intensity. If the lumbar spine is affected in its lower part, or at the function of the sacrum, there will be simple paralysis of motion in the lower extremities, supplied by the sacral plexus, and to but slight extent of sensation, as the lumbar nerves are the principal superficial sensory ones of the lower extremities. The bladder and rectum will not be affected as when the paralysis is higher up, and the patient may also have the power to draw the legs up to the body. If it involves the entire lumbar portion of the spine, there will be paralysis of the entire lower extremities and of the pelvis, and the patient will not be able to control evacuations from the bladder and rectum, only in so far as he may yet call into action the abdominal muscles. If in the dorsal region, there will be paralysis of all parts below, except that the intercostal nerves dip downwards in the course of the ribs. The upper extremities can rarely be completely involved and the patient live, as the phrenic nerves are given off from the third and fourth cervical, which go to form the

brachial plexus, and lesion of the spinal cord above their origin is almost immediately fatal.

The symptoms vary greatly in these cases. In some there is complete loss of motion and sensation; in others, sensation partially or completely returns in a few days; and in others, there is only paralysis of motion. When it is very severe, we find that the circulation is impaired, there is coldness or tendency to erysipelatous inflammation and sloughing. In other cases the circulation does not seem so much disturbed, but there is gradual atrophy of the muscles. And in a third class, circulation and nutrition appear to be carried on as usual, and the muscles respond to stimulation.

In a part of these cases we will find more or less tonic contraction, and in others complete relaxation. In some, even though there is manifest atrophy, the flexor muscles gradually contract until they produce marked deformity, being hard and rigid under the skin, as in contraction of muscles in other diseases. Frequently we find more or less involuntary movement, sometimes very distressing to the patient; and in these cases slight irritation of the surface or tickling of the foot will call the muscles of the extremity into spasmodic action.

Paralysis from disease of the nerves or from compression is frequently met with, the most common form being facial palsy. The portio-dura or facial nerve is the one most frequently implicated, and its power of transmission destroyed. This may result from disease of the nerve trunk, or from disease of adjacent structures in any part of its course causing pressure. We diagnose it by the paralysis of the muscles supplied by this nerve, and especially the inability to close the eye on that side, the face being drawn to the other. It is very rarely caused by disease of the brain, while the fifth pair is very frequently so.

Paralysis of a limb, or of a single muscle, may be caused by compression of the nerves supplying the parts. Thus, I have seen two cases of paralysis of the arm from tumors of the axilla, one being complete, the other partial. Cases of paralysis of parts supplied by the sciatic nerve from the pressure of tumors is recorded, and also from disease of the nerve, and from suppurative inflammation in its track. Usually there will be but little difficulty in determining the character of the lesion.

Dr. Brown-Sequard contends that local paralysis is frequently the result of reflex action, and gives the following

instances: "In cases of neuralgia of the face, even when caused by a wound, a paralysis of the whole or of a branch of the third pair of the nerves is often observed. This paralytic affection is easily cured when the neuralgia is cured. The arms may be paralyzed by a reflex action from various sources. In one case, after a sprain of the left elbow-joint, the whole of that arm from the shoulder to the elbow became paralyzed, and a few days afterward, the right arm was also attacked with paralysis, and to a greater degree than the left. There was no other symptom of disease of the nervous system, nor was there any appearance of a rheumatic affection. For several months a variable degree of pain remained in the left elbow-joint, and many times during that period it was ascertained that the degree of paralysis was in correspondence with the degree of pain, and that, when the pain ceased altogether, the paralysis was soon completely cured. It will easily be admitted that I studied the case with interest and care, as I myself was the subject of the observation. In the above case there was paralysis without wasting: it is not rare to find wasting accompany the paralysis when its origin is in some irritation of centripetal nerves. As regards the lower limbs, I have related elsewhere several such cases; as regards the arms, I have seen three cases in which an irritation from a wound on the fore-arm produced a reflex wasting palsy either in the same arm (in parts, the nerves of which had not been wounded) or in the other arm. The upper as well as the lower limbs, and other parts of the body, may be paralyzed in consequence of an irritation of the bowels by worms. Moll, of Vienna, relates a case of paralysis of the two upper extremities which had lasted three months, when it was suddenly cured after expulsion of a very long tænia, and Dr. Holland one of anæsthesia and partial paralysis of the lower extremities which was cured in two days after the expulsion of lumbrici.

Wasting Palsy.—An entirely different form of paralysis is described by Dr. Roberts under this head, and as I have never seen but one case of the kind, I will quote the symptoms given by him. "The characteristic of, wasting palsy, is a gradual loss of motive power from atrophic degeneration of the muscles, independent of any disease of the brain or cord. The volitional impulses proceed to the muscles without impediment, but the decaying fibres are no longer able to

contract in response. The wasting may extend to nearly all the voluntary muscles, both of the trunk and extremities, or be confined to one or more groups in the upper or lower limbs. This led Aran to divide the cases into two divisions, according as the atrophy was partial or general. Practically it is important to keep the two groups distinct. The gravity of wasting palsy, *so far as the part is concerned*, is commensurated with its extent, *but so far as life is concerned*, it depends on the location. So long as the disease is limited to the extremities, life is not imperiled, but as soon as the muscles of respiration are attacked, the prognosis becomes exceedingly grave, for death is the usual result. General wasting palsy differs also from the partial variety, not merely in the extent and character of its ravages, but in its course and condition of origin; so that there is good reason, apart from the contrasted prognosis, to consider the two groups as distinct varieties." This must not be confounded with the wasting or atrophy resulting from disease of the brain and spinal cord, for though we speak of wasting in hemiplegia and paraplegia, it has reference to imperfect nutrition from want of innervation and proper circulation of blood.

Shaking Palsy.—Shaking palsy or muscular tremor, bears a distant relation to other forms of paralysis, and though not unfrequently met with, it has been imperfectly described. It occurs most frequently in the decline of life, and must not be confounded with chorea, or the muscular tremor of the young. Frequently its origin can be dated to some intense emotional excitement, or low febrile or inflammatory disease. It may affect a single limb or part, or it may be general. The head and upper extremities are its most frequent seat, and it usually not only increases in intensity as time progresses, but extends to adjacent parts. The affection commences at first with a feeling of weakness, and difficulty in making the muscles obey the will, and more or less agitation when they are moved suddenly. It increases gradually, until the parts are thrown into violent agitation whenever they are moved, and in some cases can not be kept still, the exertion of trying to still them only increasing the difficulty. When the lower extremities are involved, it is with difficulty that the patient walks, and if in the least excited, there is a tendency to fall forward, which is only controlled by running. In all cases we notice that there is less tremor after rest, and when the

person's mind is calm and collected, so that in the morning, after a good night's rest, the muscles can be controlled by the will to a considerable extent. In very severe cases the patient so loses control over himself that the most common offices have to be performed for him by others.

DIAGNOSIS.—The diagnosis of paralysis is usually very easy, the symptoms being so prominent in most cases that no person can make a mistake. So, also, is it very easy to distinguish the different forms of it; hemiplegia or paralysis of half the body vertically, paraplegia or paralysis of the lower portion of the body, transversely, and local paralysis. Hemiplegia we have already seen, is produced by disease of the brain, except in those rare cases in which it arises from disease of the upper portion of the spinal cord, or those which are produced from reflex irritation or disease. Paraplegia results from disease of the spinal cord or its envelops, except in those cases of reflex paralysis already named. Local paralysis may occasionally result from disease of the brain, as in some forms of facial paralysis, but more frequently from disease of the nerves, or parts adjacent to them, or as Dr. Brown-Sequard states, the result of reflex irritation. As regards the pathological lesions we will have to be guided in our diagnosis by the preceding history of the case, and by the present symptoms, it being a very difficult matter in many cases.

PROGNOSIS.—The prognosis in paralysis will depend very much upon the character of the lesion. In some cases we have good reason to know that the parts are irremediably impaired, and in such cases, treatment is of no avail. In others, even though the symptoms may be grave, the patient may completely recover, and if the paralysis is not complete, and there are no evidences showing that disease of the nervous centers is progressing, the prognosis is favorable. We may also give a favorable prognosis in cases in which there is amendment, so as to give slight motion and sensation, though sometimes we will be mistaken. Rigidity of the paralyzed muscles indicates that there is still irritation of the nervous center, at the seat of lesion, and that the nerves are capable of performing their function, and may be considered favorable if there is no disturbance of the general system and the mind is clear. In cases where the temperature of the part is lowered, and there is imperfect circulation, the prognosis is

unfavorable, and especially if attended with marked atrophy of the muscles.

TREATMENT.—The treatment of paralysis is almost wholly empirical, and not in that sense that we speak of the empirical use of a remedy, which is used simply because it has had the desired effect in previous cases, for in this case we can not frequently determine whether we have the similar case, and if we have, the remedy sometimes proves useless. If the attack is recent, and there is evidence of irritation and determination of blood as manifested by pain, tenderness on pressure, and contraction of muscles, we would adopt means to relieve this condition. Wet cups to the part, followed by the irritating plaster, an active cathartic of Podophyllin and Leptandrin, and a solution of Acetate of Potassa with Tincture of Asclepias, would be an appropriate treatment. I recollect one case, some three years ago, in which hemiplegia followed apoplexy; there was pain in the head, tenderness about the left mastoid process, and marked rigidity of the muscles of the paralyzed part; he had been treated for three weeks with Nux Vomica and Electricity, but grew worse instead of better. He was a stout plethoric man, and I directed eight wet cups to the neck as near as possible to the apparent seat of the disease, shaved the part and applied a blister two inches square, following it with the irritating plaster; evacuated the bowels thoroughly with Podophyllin and Bi-tartrate of Potassa, and a small portion of Tincture of Aconite; marked improvement was noticed the succeeding day, and by the sixth day the cure was complete. In some cases of hemiplegia, I should administer an emetic, for its revulsive influence, but they should be carefully selected. We might also use the hot bath, vapor bath, or wet sheet pack, as well as the cold douche, in appropriate cases.

In some cases of hemiplegia and many of paraplegia, there has been effusion of blood or coagulable lymph in the nervous structures, or their membranes, and in consequence of absorption there is slow return of sensation and motion. In these cases we may employ alteratives with advantage. The Compound Tincture of Corydalis with Iodide of Potassium, or the Compound Syrup of Stillingia with the same, or Bromide of Potassium, may be employed with advantage. The Iodide of Ammonium may also be used in doses of five grains three or four times a day. Continued suppuration

with the irritating plaster is very important, especially in cases of disease of the spinal cord. In such cases as these, we sometimes obtain more benefit from continuous counter-irritation, than from all other means put together. If we employ cathartics to a considerable extent, as in the case of the continuous use of small doses of Podophyllin, it should be associated with tonics, as the Quinia and Hydrastin.

The measures already referred to may be employed with equal advantage in both hemiplegia and paraplegia, but further than this we will have to make a distinction. In some cases we prefer to let time effect the cure, by the removal of a deposit, or the restoration of diseased nervous structure; our attention being directed to keeping the general health in the best possible condition, and using means to prevent atrophy of the muscles. In such cases we keep the bowels regular and the appetite good by the use of the pill, \mathcal{R} , Podophyllin, gr. xx; Extract of Nux Vomica, gr. xv; Quinia, Hydrastin, $\bar{a}\bar{a}$, \mathfrak{z} ij; M., and make one hundred pills, of which one may be taken four times a day. The kidneys may be kept acting freely by the employment of a weak solution of Acetate of Potassa, and Hydrochlorate of Ammonia, \mathfrak{z} j, of each to Water, \mathfrak{z} iv. In addition, friction with the hand, or with the flesh brush, or the local application of the Tincture of Cajeput, or the use of Electricity, with motion as hereafter named, will fulfill the indications. There are cases in which we would give stimulants freely, Cod-liver Oil, the Hypophosphites or Phosphorated Oil, Quinia, and all those means that are known to improve nutrition and favorably influence the nervous system. The means recommended in paraplegia may also be adopted in some cases, as those already named are applicable in a large majority of cases of spinal palsy.

In paraplegia, and in many cases of hemiplegia and in local paralysis, Nux Vomica and Strychnia are resorted to more frequently and with better success than any other remedies. It is the most powerful stimulant of the nervous system we possess, and undoubtedly increases the amount of blood in the nerve substance and its surroundings, and the vital properties of the nervous centers. This being the action of the remedy, we would employ it in cases in which there was no evidence of irritation, but rather of imperfect circulation and nutrition. Belladonna has been highly recommended in paralysis by some continental physicians, and though often

unsuccessful here, it may depend more upon our want of skill in selecting cases, than upon the inertness of the remedy.

Dr. Brown-Sequard states that: 1st. Belladonna is one of the most powerful and reliable remedies that we may employ, in cases of paraplegia, with symptoms of irritation of the motor, sensitive, and vaso-motor or nutritive nerve fibres, of the spinal cord, or of the roots of its nerves; in other words, in cases of congestion, meningitis, or myelitis. 2d. Belladonna is a most dangerous agent, able only to increase the paralysis, if employed in paraplegia, without symptoms of irritation, such as cases of white softening, or of the reflex paraplegia.

Ergot has been used with advantage in some cases of both paraplegia and hemiplegia, but more especially the first. It is especially indicated in the same cases as the Belladonna, in which there is congestion or irritation of the spinal cord, and should be avoided in cases without irritation, as in reflex paraplegia and softening. Sulphur and Phosphorus may both be employed with advantage in cases of softening of the spinal cord, or where there is evidence of feeble nutrition. Cod-liver Oil, Quinia, Iron, and the bitter tonics will occasionally prove very serviceable in the last named cases, and sometimes in all forms of the disease. Cantharides, Rhus Toxicodendron, Lachesis and Bryonia, act in a very similar manner to Strychnia, and Stramonium, Hyoseyamus and Indian Hemp, to Belladonna.

As heretofore remarked, we obtain great advantage in cases of paraplegia, with symptoms of irritation of the diseased portion of the spinal cord, from the use of counter-irritation. In the majority of cases we use the irritating plaster, in some the dry cups, in others firing, and in others the seton, issue, etc. The hot douche to the spine is sometimes efficacious, but the cases must be carefully selected. Suppuration is the end desired in a majority of cases, and any application that will continue it without endangering the tissues will prove the best. In the opposite class of cases, we would use stimulant applications and friction to induce determination of blood. Compound Tincture of Cajeput answers a good purpose, and the salt water friction may be employed. The cold douche to the part of the spine affected, is sometimes useful, but it must be employed for reaction rather than for its immediate influence. If circulation is feeble in the paralyzed part, we

would direct frictions, with the use of a stimulant, as the Tincture of Capsicum in such strength as was necessary. This is especially indicated where nutrition of the part is impaired, as is manifest by gradual atrophy; and in this case, in addition to the friction, we would move the extremities in various ways to call into action the muscles. Electricity is of much advantage in these cases, not because it removes the paralysis, but because by it we can call the muscles into action, and stimulate normal circulation of blood and nutrition. We employ Electricity as a curative agent in some cases, passing the current from the part of the nervous center paralyzed through the body in the direction of the nerves, or in some cases confining it to the nervous center alone, as in cases of paraplegia from disease of the spine.

Shaking palsy if of long duration is not only incurable, but does not usually admit of amelioration. In some acute cases, arising from arrest of secretion, the proper use of purgatives and diaphoretics may be successful. Wasting palsy demands considerable care and attention. The patient should be put upon the use of Cod-liver Oil, the bitter tonics and Iron, should have abundant exercise in the open air, and a highly nutritious diet. In addition, galvanism should be applied every day, for ten or fifteen minutes at a sitting: it is not used as in previous cases—passing the current from the spine in the direction of the nerve trunks—but the poles of the battery being covered with wet sponge, they are placed on the affected muscle a short distance apart, and by moving, the entire structure is influenced, which increases the advantage of the application: those parts that have suffered most should receive the most attention, but it should not be continued too long.

CEPHALALGIA.

Headache is one of the most common forms of disease that we meet with, and though generally considered as but a slight affection, there is none probably that occasions more suffering, or that is less amenable to the usual treatment. It would seem, from the extent of information on this subject among medical men, that it was hardly worthy of notice, and had better be left as a matter of family practice, or as a disease for patent medicines. The causes of headache are very many,

and though we can not possibly tell why they produce this affection, or even what structure it is that is painful, we are enabled by studying them to relieve the pain in nearly all cases, and to effect permanent cures in a great many.

We might group the different kinds of headache under the following forms: 1st. Headache from determination of blood. 2d. From cold. 3d. From depression or exhaustion. 4th. From derangement of the stomach, liver, etc. 5th. Pericranial or from disease of the pericranium, or cranial bones. 6th. From deficient urinary excretion. 7th. From rheumatism. 8th. Periodical, from malaria; and 9th. The sympathetic. It is true that we can not always make these distinctions, and that two or more of them may be associated together, but as giving a general idea of the disease, the divisions are useful.

Headache from determination of blood, is a frequent form of the disease, and may arise from any cause producing irritation of the brain, as, over-excitement, severe exercise in a stooping position, or in the sun, etc.; or from arrest of secretion, the blood vessels being overloaded in consequence. The same causes will give rise to a slight congestion of the head, and may be considered as similar in character to determination. The symptoms of this form of headache are, intense aching pain in the head of a tensive or throbbing character, the head is hot, the face flushed, the eyes suffused and intolerant of light, and the secretions are more or less arrested. It usually passes off in twenty-four or forty-eight hours, but may continue for several days. Some persons seem subject to it, and have attacks from slight causes.

In many cases of this form of headache we would give a brisk purgative, as the Compound Podophyllin Pill, in the meantime using the Tincture of Gelsemium to modify the fever. If the pain is excessive, we may use the hot foot bath and give the patient some warm diaphoretic infusion, or, ℞, Essl. Tincture of *Asclepias*, f3ij; Tincture of Gelsemium, f3ss; in doses of a teaspoonful every hour until free perspiration is produced. When the person is subject to frequent attacks of such headache, we may recommend that particular attention be paid to keeping the bowels regular, that a daily cold bath be used, if possible, and if persistent, we may prescribe, ℞, Acetate of Potassa, ʒss; Tincture of Gelsemium, ʒss; Aqua, f3ijss; M., and take in teaspoonful doses, three or four times a day.

Headache from cold is a frequent form of the disease in winter and spring, and will sometimes last for several days at a time. It seems to be dependent partially upon arrest of secretion, but more especially upon the sub-inflammatory condition of the mucous membrane of the nose, pharynx, etc. The head feels full and heavy, and the pain is usually dull and aching, with occasional sharp, darting pains just above the eyes, especially on stooping, or any continual mental exertion.

We would treat this case as we would the bad cold it is associated with. The feet should be bathed in hot Mustard water, the patient packed warmly in bed, and an active diaphoretic used to induce free perspiration. A purgative may frequently be used with advantage, and sometimes the speediest relief is obtained from the use of an emetic. Tincture of Gelsemium, in doses of ten to thirty drops every two or three hours, is a valuable remedy in many cases, and an alkaline diuretic should follow the diaphoretic. Frequently we would direct a sinapism to the back of the neck and between the shoulders, and occasionally in severe cases we may use the cups.

Headache is of frequent occurrence in *anæmic conditions* of the system, and is sometimes the most troublesome symptom; in other cases the head is perfectly clear and free from pain. We suppose that the headache in these cases is owing to feeble circulation in the brain and imperfect nutrition, though in many cases, even here, it will be found to depend upon derangement of the stomach and arrest of secretion. Headache from temporary exhaustion from excessive physical or mental exercise, or emotional excitement, is of very frequent occurrence, and is usually very severe and attended with derangement of the stomach, and hence forms one variety of *sick headache*. In both these cases the pain is sharp and acute, darting, tearing, tensive, and throbbing, and the patient suffers severely. Usually the face is pallid and contracted, the eyes sunk in the head, a dark line around or under them, and a weary, anxious expression of countenance. It may last but one day, or it may continue for several, and may recur frequently.

If in this case the secretions are deranged, we find that it is necessary to restore them before the headache can be controlled; hence the advantage of mild stimulant purgatives, diaphoretics, and alkaline diuretics. When the tongue is

coated, a bad taste in the mouth, and sickness of the stomach, the headache being persistent, a mild emetic will usually give speedy relief. For the attack I frequently prescribe, \mathcal{R} , Essl. Tincture of Asclepias, $\mathfrak{z}\text{ij}$; Tincture of Valerian, $\mathfrak{z}\text{j}$; \mathcal{M} ., and give in half teaspoonful or teaspoonful doses every hour or two, the patient lying down and keeping perfectly quiet. A sinapism to the back of the neck, and to the epigastrium, sometimes gives marked relief. When there is a general anæmic condition, the permanent cure will depend upon the restoration of a normal quantity and quality of the blood; Nux Vomica or Strychnia, Sulphur and some preparation of Phosphorus, being important agents in the cure.

Pericranial headache is not of frequent occurrence, though occasionally a case is met with. It is said to occur only in those who have suffered from continued cerebral excitement, and that it depends upon a highly vascular state of the brain and membranes. It is caused by cold, by sudden changes of temperature, by excitement of the brain from long-continued study or emotional excitement. The pain is tensive and remitting, and is increased by pressure, or by moving the muscles of the scalp. The patient is restless and uneasy, sleeps poorly at night, has bad dreams and startings in his sleep. It may last for several weeks, or even months, being better when the weather is fair, and the patient calm and quiet, but aggravated by excitement, by change of weather, or exposure to a draught of cold or damp air. Disease of the bones of the cranium giving rise to headache, is most generally syphilitic, as in most other cases no disturbance of the brain is produced. The pain is localized and remittent, occurring more frequently and with greater severity at night.

In the first case we should recommend perfect quiet so far as mental exertion or excitement is concerned, the patient taking as much physical exercise in the open air as seems beneficial. The bowels may be kept open with the Podophyllin pill, the urinary secretion free, by the use of alkaline diuretics, and the condition of the skin improved by the use of the Salt water bath with friction. In some cases we may accomplish all that we desire with medicine by the use of the Compound Tincture of Corydalis and Iodide of Potassium, with sometimes the addition of a portion of the Essl. Tincture of Jeffersonia. The Iodide of Ammonium, in doses of from three to five grains four times a day, answers a good purpose in

cases of cerebral excitement, and especially on those in which there is temporary forgetfulness and dizziness following the preceding condition. In disease of the cranial bones we would adopt an anti-syphilitic treatment if the case was in any degree obscure, and we might so arrange it as to relieve the pain at the same time we were counteracting the specific disease; as, ℞, Extract of Conium, ʒj; Iodide of Potassa, ʒij; Tincture of Macrotys, Tincture of Corydalis, āā, fʒss; Aqua, fʒij; M., and give in teaspoonful doses three times a day.

Headache from deficient action of the kidneys, is in my opinion, the most common form of the disease. It is occasioned by cold or any cause that tends to arrest the secretion. In some persons it recurs frequently, and lasts for one or two days at a time, so as to become a source of great annoyance. In the milder cases the head feels heavy and dull, and there is a dull, aching pain and feeling of soreness in the base of the cranium, sometimes shooting from side to side, and at others from before backward. In severe attacks, the pain is intense, darting, throbbing, and tensive, and is aggravated by motion, and especially by noise, or stooping. If attention is called to it, it will be noticed that the urine was scanty prior to the attack, and became more free afterwards.

We can mitigate this form of the disease by the administration of purgatives and diaphoretics, but it is more readily arrested by the use of the saline diuretics. The tendency to the disease may be frequently overcome by the employment of a solution of Acetate of Potassa in the usual doses, whenever the head commences to feel heavy and bad.

Derangement of the stomach is a frequent cause of headache, and especially in persons of sedentary habits, and those who have but little exercise in the open air. It is noticed in these cases that the susceptibility of the nervous system is increased, and the digestive and assimilative functions weakened. This form of headache is induced by anything that irritates the stomach, as indulgence in improper food, eating late suppers, overloading the stomach, too free use of stimulants, especially if not accustomed to their use, constipation of the bowels, etc. An attack of this headache usually comes on with a sense of weight and tension, with dizziness, and a sharp, lancinating pain when the patient stoops. In an hour or two the patient frequently feels chilly, and there is a sensation of nausea and disgust, which not unfrequently terminates in vomiting. The

pain now becomes severe, is dull, aching and tensive, with throbbing in the temples, and almost insupportable weight; or is sharp and lancinating, darting from one part to another, and seeming sometimes as if the head would be torn to pieces with its violence. It usually commences in the morning, and does not terminate until the patient goes to sleep at night, and in rare cases continues for several days.

If called to a case of this kind of headache during the attack, I usually administer an emetic, one that will act quickly and kindly being preferred. There is no other way to check the paroxysm in a majority of cases, and this is very efficient. Otherwise, I would have the feet bathed in hot Mustard water, a sinapism applied over the epigastrium and upon the nape of the neck, and give freely an infusion of Sage, Spearmint, Pennyroyal, or any warm, stimulating diaphoretic. Quite frequently when the patient has drank a cupful, vomiting ensues, and it is thrown up; if it is now repeated, in a short time the patient will go to sleep, and will awake refreshed. We can generally ward off an attack by the use of the Neutralizing Cordial, or a mild cathartic taken the evening previous, or by the administration of an alkaline diuretic. For the radical cure, we will adopt such means as would seem indicated from the condition of the stomach, some form of dyspepsia being almost always present.

Rheumatic headache most usually results from cold, especially night exposure, or sitting where the cold air will strike the face, though sometimes it is observed as a metastasis of rheumatism. It may be situate in the muscles, as the occipitofrontalis, temporal, or the muscles of the occiput, and back of the neck, and is sometimes associated with determination to the membranes of the brain. "The pain is severe, heavy, distracting, and aching, and in its uncomplicated state is attended by a sense of coldness, by great tenderness of the scalp, by rheumatic pains, extending down the neck, or in one side of the neck, or one shoulder, or in the face; sometimes by copious perspiration, and more rarely by rheumatic inflammation of one or both eyes. It is generally aggravated in the evening, and alleviated in the morning and by warmth." If the membranes of the brain are affected, there is also giddiness, drowsiness, and internal throbbings, the face being often flushed, the eyes injected, and the vessels loaded.

We would treat rheumatic headache as we would any case

of rheumatism, to which the reader is referred for full description. Tincture of Macrotys, with Tincture of Asclepias and Gelseminum, equal parts, given in teaspoonful doses every two or three hours, is often very efficient. We may add to it an alkaline diuretic, as the Acetate or Citrate of Potassa, or we may use the last named agents alone. Macrotys with Conium forms a good combination, as, R, Extract of Conium, 3ss; Tincture of Macrotys, f3j; Iodide of Potassa, 3j; Water, f3iij; M., and give in teaspoonful doses every three hours. Cups to the nape of the neck, followed by the irritating plaster, is the most useful local application.

Headache is frequently periodic, and is occasioned we suppose by the same causes that give rise to other periodic diseases. In the most frequent form, it comes on in the morning, and gradually increases up to noon, and then decreases until evening. It may, however, appear at any period of the day, or every other, or every third day. The pain is sometimes dull, heavy, and contusive, and at others sharp, lancinating, and throbbing; there may or may not be sickness of the stomach, or chilly sensations, or slight febrile action when the pain is most intense.

In periodic headache we wish first to establish the secretions, which are almost always impaired, and next to administer some remedy capable of controlling the periodicity. Thus, if the bowels were costive we would give a Podophyllin purgative, with a diaphoretic, as, Essl. Tincture of Asclepias and Eupatorium, with Tincture of Gelseminum, and an alkaline diuretic. In some cases this will control the headache, but usually it only prepares the way for the administration of Quinia, which is given in the same doses that would be used in a case of ague. Given in this way, Quinia always arrests the disease, but if the system is not properly prepared for it it frequently fails.

Sympathetic headache is sometimes called *nervous*, and generally occurs in feeble, debilitated persons, and those of a sedentary habit. It is almost always associated with diseases of some other part of the body, and is thus frequently seen in cases of uterine disease, especially functional lesions, in derangements of the urino-genital organs, the bowels, etc. The pain varies in character, resembling the two preceding forms, and recurs frequently but at irregular periods.

Having determined the nature of the lesion giving rise to

the headache, we will frequently relieve it either by curing or palliating the primary disease. Any of the means already named may be employed in addition. The Jeffersonia has been strongly recommended in this and analogous cases, and is well worthy of trial. Liquor Ammonia is used with advantage in this and some other forms of headache; twenty to forty drops may be thoroughly mixed with a cup of gruel, and taken at bedtime, or whenever the paroxysm of pain occurs. Dr. Simpson recommended the Sulphate of Nickel in doses of from half to one grain three times a day, and it seemed to be of more service in chlorosis and amenorrhœa.

CHAPTER VIII.

DISEASES OF THE ORGANS OF SPECIAL SENSE.

These affections are of very frequent occurrence, and except from special treatises the practitioner has no means of reference, as they are but partially described in works on practice and surgery. For some years past the treatment of diseases of the eye and ear have been made a speciality; and they have been so divided and subdivided, and so many long names affixed to small things, that the general practitioner has great difficulty in understanding a technical work on the subject. There can be no doubt but that these diseases can be better treated by the specialist than by the general practitioner, and yet many times it is impossible for the patient to get other treatment than from the family physician. This fact, if no other reasons existed, should cause us to study these diseases with that care that will enable us to diagnose their various phases, and treat promptly and successfully those that are amenable to medicine, reserving those cases for the oculist that require surgical interference. While, therefore, I shall be compelled to be brief in my description, I will try to place it in such a light that it will be readily understood.

DISEASES OF THE EYE.

The eye is one of the most important organs of the body, and though its diseases do not endanger life, their favorable termination is as anxiously watched for by both patient and friends as the more grave maladies. As regards the pathology of these affections, we will find it the same as in other portions of the body, and as a general rule, the same treatment will be applicable. Inflammation of the structures of the eye is the same disease as inflammation of any other part of the body, differing only as regards the peculiarity of structure and function of the parts. And in the treatment of this affection the same general principles apply in the one case as in the other.

So it is in all other diseases, and he who properly understands the pathology and nature of the affection need be at no loss for appropriate treatment.

The organ of sight, it will be recollected, consists of two parts, the eye itself and its appendages, the latter being two palpebra or lids, the conjunctiva or investing membrane, the lachrymal apparatus, the muscles moving the eye, and the cellular and adipose tissue that forms its bed. Each of these parts may be diseased, but some of them so rarely that it is hardly worth while to notice them in this place. The globe of the eye is composed of three tunics, the external composed of the sclerotic and cornea, the middle of the choroid, and the internal the retina or expansion of the optic nerve; it has a muscular septum dividing it into two parts; the iris; and has three humors possessing different degrees of density, the aqueous, the vitreous, and the crystalline lens.

The *eyelids* may be the subject of phlegmonous inflammation, usually associated with erysipelas. They are swollen and livid, and very painful, and occasionally the inflammation extends to the cellular tissue of the orbit. It may terminate in resolution or suppuration, the pain being severe and throbbing when pus has formed, and the constitutional symptoms tolerably well marked. If the inflammation is dependent upon erysipelas, we may apply equal parts of Tincture of Muriate of Iron and Glycerin, every two or three hours, keeping a cloth wet with the same over it; if from other causes, a poultice of equal parts of Hydrastis and Ulnus, or cloths dipped in a decoction of Cornus, with a small portion of Tincture of Aconite. The bowels may be moved with the Compound Powder of Jalap and Senna, and if necessary a diaphoretic and diuretic given. If suppuration occurs, the abscess should be carefully opened as soon as it is detected, as if it remains it increases in size, and sometimes causes great destruction.

Furuncle, or *boils* of the eyelid, are of very frequent occurrence, and sometimes occasion much suffering. Occasionally they pass through their stages rapidly, a week sufficing for their removal, but in other cases they are very chronic. When formed on the edge of the eyelid, they are called *styes*, and are smaller but not less painful. They require but little attention, except in such cases as would be injured by the continued pain and restlessness produced by them. In such

cases they may be incised, and if pus has not yet formed, touched freely with a crystal of Sulphate of Zinc, and a poultice applied.

Ptosis, or falling of the upper eyelid, is caused by paralysis of the third pair of nerves, or by disease affecting the eyelid, or the levator muscle. In cases of paralysis, it may be relieved sometimes by the use of Electricity or local stimulant applications and the proper internal remedies; failing in this, and in the cases not dependent upon paralysis, a surgical operation is demanded. *Entropium* or inversion of the eyelids, and *ectropium* or eversion, are only remediable by surgical operations.

Trichiasis, or inversion of the eyelashes, is popularly known as "wild hairs in the eye," and is often a source of great irritation, if not of inflammation. The trouble is owing to a misdirection of the cilia, a portion of them being turned inwards, so as to come in contact with the eye. The cause is usually easily detected by turning the patient's eye to a strong light and slightly raising the lid, the faulty hairs being seen to pass inwards to the conjunctiva. They are usually of a light color, smaller and much more flexible than the normal ones, and for these reasons are sometimes detected with difficulty. In cases of partial trichiasis the treatment is easy, and consists simply in removing the offending cilia with a pair of forceps. I can yet feel the mortification I once experienced, in which, after treating a case of "sore eyes" for two weeks, the patient was cured in forty-eight hours by an old woman removing these faulty hairs. In severe cases this will not answer, a surgical operation being necessary.

OPHTHALMIA TARSI.

Inflammation of the edges of the eyelids is noticed more frequently in children than in the adult, and is frequently associated with some depraved habit of body, as scrofula. When primary, it may be the result of cold, smoke, impure air, and filthiness; but it is most usually a sequence of catarrhal ophthalmia or scrofulous conjunctivitis. The disease is located in the edge of the lid and meibomian follicles, and in many cases so affects the roots of the eyelashes as to cause them to fall out, hence that appearance termed "blear-eyes." The eyes look sore and tumid, and the patient complains of a sensation of roughness, and as if there was sand in the eye,

when the lids are moved, and thus there is the constant tendency to keep them partially closed. They are agglutinated together in the morning, sometimes so much so that the patient has to soften them before he can open them, and it is even then attended with pain. Ophthalmia tarsi is essentially a chronic affection, with but little tendency to spontaneous recovery, and is sometimes very difficult to cure, and if the meibomian glands are closed, the edge of the lid has a shining, glistening appearance.

TREATMENT.—As there is almost always a faulty constitution, with marked evidence of some cachexia, we find it important to put the patient upon an alterative and tonic course of treatment. The Compound Tincture of Corydalis, or Compound Syrup of Stillingia, with Iodide of Potassium, may be administered in the usual doses. Some preparation of Iron should be given with this, frequently the Tincture of Muriate of Iron will answer best; and if necessary, the bitter tonics may be added. Very much depends upon keeping the eyes clean, and removing the tenacious secretion without causing pain and irritation. Hence, the eyes should be frequently bathed during the day with warm water, or a weak decoction of Cornus or Hydrastis, keeping them as entirely free from the secretion as possible. Glycerin answers a very good purpose in some cases, usually combined with an equal quantity of Rose-Water, and applied freely. The parts being perfectly cleansed, we apply once or twice daily, a very small portion of mild Zinc or Ophthalmic Ointment; or, instead of this, we may use a mild collyrium of Sulphate of Zinc or Borax, or one or two drachms of Nitrous Æther and Vinegar in eight ounces of water, and followed by the Glycerin lotion. In very severe cases, the faulty cilia may be removed, the crusts carefully taken off, and the ulcers lightly touched with Nitrate of Silver. In the application of warm water, or the decoctions named, or to foment the eye, we can accomplish our purpose best by the use of a very soft sponge. Counter-irritation to the nape of the neck, or behind or before the ears, with the blister or irritating plaster, is often of great advantage.

CATARRHIAL CONJUNCTIVITIS.

The conjunctiva covering in the globe of the eye, and lining the lids is exquisitely sensitive, and though abundantly protected, is frequently exposed to the causes of inflammation. Temporary inflammation is often seen as the result of dirt or sand in the eye, or even exposure, but very soon disappears with rest. The disease we are now describing may arise from cold, sudden changes of temperature, extension of inflammation from the mucous membrane of the nose, or from inoculation with the secretion of a diseased eye. This last cause should be carefully guarded against, as we not unfrequently observe whole families attacked with the disease from the indiscriminate use of towels.

SYMPTOMS.—The disease commences with a sensation of dryness and smarting of the eyelids, with a feeling as if dirt or sand had got into the eye, and it is with difficulty that the patient gives up this idea, the impression is so strong. In a short time the eyes seem tumid and swollen, the unpleasant sensations have increased, and a more or less abundant secretion, sometimes opaque and puriform, is established. If the eyes are now examined, the palpebral conjunctiva will be found red and swollen, and more or less reticular redness of the ocular conjunctiva. As the inflammation progresses, the last portion of the conjunctiva becomes more completely involved, and we sometimes observe ecchymosis or extravasated blood under it. In a still severer form the conjunctiva is remarkably injected and swollen to the point where it passes into the cornea, so much so occasionally as to partially cover up this part of the eye; this swelling is termed chemosis. Catarrhal ophthalmia is always periodic, the exacerbation occurring in the evening, and sometimes attended with headache, the pain and itchiness cease a short time after going to bed, and the patient sleeps well, but it reappears in the morning on attempting to use the eyes.

In many cases the disease continues thus for a week or ten days, and then gets well without further change; but in some cases it is more persistent. Sometimes we notice a small blister on the ocular conjunctiva, which rupturing forms an ulcer, constantly throwing off an abundant puriform secretion; it may attain the size of a half-dime, or be even larger than this,

and is usually very painful. The cornea is sometimes obscured and hazy from the inflammation, and in that variety of the disease termed phlyctenular has a tendency to ulcerate. This last form of the disease occurs most frequently in children and young persons, and is usually connected with a scrofulous constitution. The symptoms are, marked pain and intolerance of light, free secretion of tears, deep redness of the eyelids, but slight of the ocular conjunctiva, sometimes but three or four vessels being seen to pass across to the cornea. Soon we notice the production of one or more blisters on the cornea, which discharging, forms an ulcer; this may increase in size until it involves a considerable portion of the cornea, or it may rapidly increase in depth until it perforates it, and causes a discharge of the aqueous humor. In some of these cases, the phlyctenula are absorbed, leaving a small, white spot, called *albugo*; or a cicatrice results from the ulceration, called *leucoma*. If the ulcer penetrates the cornea, the iris is almost always thrown forward by the escape of the aqueous humor, and passing into the opening becomes adherent, and is termed *synechia anterior*.

DIAGNOSIS.—Catarrhal conjunctivitis is usually recognized with ease; the inflammatory action commencing in the palpebral conjunctiva, and subsequently extending to the ocular portion, with secretion of muco-pus, are the characteristic symptoms. In phlyctenular ophthalmia, there is inflammation of the conjunctiva, but the disease is principally confined to the cornea; the appearance of the small vesicles or ulcers in the cornea marks the distinction. That form described as *pustular*, is marked by the formation of pustules, terminating in ulcers in the ocular conjunctiva, near the cornea.

PROGNOSIS.—In the milder forms of catarrhal ophthalmia we usually succeed in arresting the disease in a week or ten days, but if allowed to progress, or badly treated, it may endanger the integrity of the eye and last for months. The phlyctenular form is more difficult to treat, and not unfrequently leaves the marks already mentioned. Pustular ophthalmia is usually very perverse, but with care may be managed so as to leave no bad result. Either of these forms may become chronic, and develop structural change which will impair vision to a greater or less extent.

TREATMENT.—In the first stage of the disease we would administer a brisk purgative as a means of derivation, and

give some active diaphoretic, and favor its action with the hot Mustard foot bath, or in some cases the vapor bath. This may be succeeded by an alkaline diuretic if it seems to be needed, the diaphoretic being continued, and the cathartic repeated if necessary. If the health is feeble this treatment should be associated with Quinia and Hydrastin, and if the patient is scrofulous, the administration of Cod-liver Oil and Whisky. In addition to this we may use counter-irritation to the neck, or before or behind the ears, in some cases using the irritating plaster, in others small blisters.

Various collyria are recommended, in fact so many that the young practitioner does not know which to select. I usually employ, \mathcal{R} , Tincture of Belladonna, gtt. xx; Tincture of Gelseminum, 3j; Water, 3ij; dropping it in the eye every three or four hours. Associated with this, if the case is acute, I direct that the eye be fomented with hot water, a piece of very soft sponge being used to make the application. In some cases a poultice of equal parts of Hydrastis and Ulmus, answers a good purpose, but I now prefer the fomentation. In all cases the patient should be kept perfectly still, in a darkened room, and use a light and easily digested diet. Mackenzie strongly recommends the use of a solution of Nitrate of Silver, gr. iv, to Water, 3j; a large drop being applied to the eye two or three times daily. For a few minutes the eye feels easy, and then for ten minutes there is a sharp pricking pain, which subsiding leaves the eye almost wholly free from pain for five or six hours, when the application should be repeated. Dr. Williams recommends a solution of Sulphate of Zinc in Rose-water in the proportion of from two to four grains to the ounce.

In phlyetenuar or pustular ophthalmia, I employ a cathartic and tonic combined, as, \mathcal{R} , Podophyllin, gr. xv; Quinia, Hydrastin, Leptandrin, āā, 3j; M., and make sixty pills or powders, of which one may be given four or five times a day. Associated with this, I have used the Compound Tincture of Corydalis, the Compound Syrup of Stillingia, and in some cases Cod-liver Oil. Sulphate of Beeberina, with Carbonate of Ammonia, answers a good purpose, as does also, the majority of the bitter tonics. If the tongue is coated at the base, with a feeling of great languor, nothing will prove more speedily or permanently beneficial than a thorough emetic, occasionally followed with the warm bath. The preparations

o o of Iron are frequently useful, and may be occasionally associ-
a a ated with the Hypophosphites and with Sulphur.

In the early stage of the disease we might steam the eye
w w with hot water and Belladonna, 3ss of the tincture to ʒiv of
v v water, three or four times a day, and use the Belladonna and
C C Gelseminum lotion heretofore named. If the pain is very
s s severe, we may use hot fomentations, and if these can not be
p p properly applied, we may paint around the eyes and the eye-
li li lids with Tincture of Iodine every two or three days. Many
p p practitioners use the Collyrium of Nitrate of Silver heretofore
n n mentioned, and some employ a solution of Sulphate of Zinc.
T T The treatment of the chronic form of the disease will be
h h hereafter considered.

PURULENT CONJUNCTIVITIS.

Purulent conjunctivitis, or Egyptian ophthalmia, is not of
fi fi frequent occurrence in this country, though when met with
tl tl there are generally several cases, as it is very contagious. It
fi fi frequently affects one eye at a time, but both may be involved.
I. I. It commences with an itching and feeling as if there were
p p particles of dirt in the eye, and adhesion of the lids in the
n n morning. In the course of one or two days this itching has
b b become very severe, and is attended with a smarting, burning
p p pain, and the discharge of a thin, acrid fluid from the eye,
w w which runs over the lid and produces smarting. On everting
tl tl the lids we find the conjunctiva swollen and reddened, and
u u usually but slight symptoms of inflammation of the ocular
c c conjunctiva. As the disease progresses, the secretion becomes
tl tl thicker and purulent, and is still acrid or irritating; the
p p patient feels very markedly the sensation as if sand was in the
e e eye, though the pain is not increased by exposure to light. In
sc sc some cases the ocular conjunctiva is quickly involved, and
tl tl there is free effusion into the areolar tissue; there is marked
cl cl chemosis, which occasionally almost buries the cornea. The
cl cl chemosis sometimes extends to the lids, which become very
m m much swollen, and the mucous membrane being everted it
p p presents a very alarming appearance.

The purulent secretion continuing for twelve or fourteen
da da days, diminishes in quantity and is less acrid, and on examin-
at at ation we find that the chemosis and redness are disappearing,
an an and the patient can make use of his eyes, though they are

still weak; this we would call a favorable termination. In other cases the inflammation is more severe, the eyes are swollen so that it is impossible to open them, and there is occasionally severe pain about the orbit, and over the frontal sinuses, and shooting pains through the globe of the eye. For days or weeks the eye continues in this condition, throwing out an abundant purulent secretion, and when the inflammation does subside, we find that it has left most serious lesions. Bursting of the cornea, and discharge of the aqueous humor is not unfrequent, vision being entirely lost, and the eye in a staphylomatous condition. In other cases there is more or less opacity of the cornea, obstructing vision, and in the most severe cases the cornea gives way and the aqueous humor is discharged, and this is followed in a few hours by the crystalline lens, and a considerable portion of the vitreous humor.

DIAGNOSIS.—We diagnose this from conjunctivitis, by the free purulent secretion, the marked swelling and tumefaction of the eyelids, and their stiffness and immobility. There is only one form of inflammation that could be mistaken for it, and that is gonorrhœal ophthalmia, and in this case the diagnosis will in many cases be made easy by the previous history of the case, and the fact that but one eye is involved.

PROGNOSIS.—“When the inflammation is of an active character, and not modified by any constitutional peculiarity, early and proper treatment promises success. When the inflammation is of a torpid character, and when the constitution is scrofulous, it yields less readily to treatment, subsides less quickly and perfectly, and fixing itself in the structures of the eye is apt to produce degeneration of it. In erythetic irritable cases, the prognosis is also unfavorable, but less so than in torpid cases.”—(Jones.)

TREATMENT.—In the early stage we would commence the treatment with a brisk stimulant purgative, as the Compound Powder of Jalap and Senna. The spirit vapor bath, with hot pediluvia, may be used, or the general warm bath, with an active diaphoretic, as, Compound Powder of Ipecac and Opium in doses of five grains every two hours, or teaspoonful doses of the Tincture of Aselepias. As soon as secretion becomes free, we would give Quinia and Hydrastin freely. The pill of Quinia, Hydrastin and Podophyllin is an excellent combination in the more chronic cases.

Dr. Mackenzie remarks that our main dependence will be

on our local remedies, "for if none are employed, or only improper ones, the eyes may be lost, notwithstanding the best general treatment." "It may appear to some paradoxical that the local applications in this disease should be alternately soothing and stimulating. Were we to trust to either sort alone, we should endanger the eyes. Soaking them constantly with tepid water, or laying emollient cataplasms over them, would be almost certain destruction; and on the other hand a perpetual succession of stimulating solutions and salves would be no less detrimental." Perfect cleanliness is of absolute importance, and for this purpose the eye should be washed two or three times a day with tepid water, and a weak solution of Carbonate of Ammonia, or Chlorate of Potassa, say, about six grains to the ounce of water. If the lids are so swollen that the eye can not be thoroughly cleansed without, we will use a syringe, being careful not to injure the structures of the eye. Following this, we may use the Tincture of Myrrh in its full strength, or diluted with one or two parts of water, or instead of this may use a collyrium of Nitrate of Silver, from four to eight grains to the ounce of water. Sulphate of Zinc, ten or fifteen grains to the ounce of water, has been recommended, but I do not like its action. Glycerin alone, or as a vehicle for other remedies has an excellent action. Following the stimulant agents named, we would apply a solution of Extract of Belladonna, 3j, to water, Oj; using it as a fomentation or a cold application as was most agreeable to the patient. The vapor of Bi-sulphuret of Carbon, say ten to twenty drops to an ounce of hot water, the vapor conducted to the eye by a glass made for the purpose, or a temporary paper funnel, answers a good purpose, in place of the stimulant applications; and the vapor of equal parts of water and Vinegar with Solution of Opium, is an excellent emollient and soothing remedy.

Counter-irritation is of much importance in this disease, and should be freely [employed. I prefer the blister, about the size of a dollar, repeated in a new place, before and behind the ears, on the temple, and on the back of the neck, say every six hours; marked amendment is frequently observed as soon as they begin to draw. If there is marked chemosis threatening the integrity of the eye, it is good practice to incise it, and thus lessen the pressure; scarification of the conjunctiva sometimes becomes necessary, and is attended

by alleviation of all the symptoms; and Mackenzie recommends that we snip away any loose folds of conjunctiva that project from between the eyelids.

Dr. Hill recommends the Tincture of Myrrh in the purulent ophthalmia of children, and relates the following case to illustrate the success of the practice: "It was allowed to run on four or five days before I saw it, and a shocking sight it then was; instead of eyes, there appeared protruding out beyond the bridge of the nose, two huge, fiery globes—mere red fungous-looking masses, nearly as large as hen's eggs. The thickening and change in the mucous coat was such that nothing like cornea was to be distinguished. It was now all one suppurating surface, and the amount of matter discharged was surprising. After attempting to allay the violence of the symptoms by various other means for two days, I took the saturated Tincture of Myrrh, and with it saturated the monstrous-looking eyes. I completely filled them with the fluid, and then laid a cloth over them wet and dripping with the same. The child cried lustily for a few minutes, but soon became easy and fell asleep. The tincture was reapplied three times a day for two days, and once on each of the two following days, when the cure was complete, the eyeballs having sunk to their natural size, and their surface assumed its healthy appearance." Allowing for the exaggerated language of the writer, we would still consider this a remarkable case, and a marked example of the benefit to be derived from the stimulant treatment. I would, however, prefer that first named.

CHRONIC CONJUNCTIVITIS.

All forms of inflammation of the conjunctiva may become chronic either by want of attention or improper treatment; and in many of these cases the patient's life becomes a burthen from the constant suffering and inability to use the eyes. Some forms of the disease may continue for years without so affecting the structure of the eye as to destroy vision, and many of the severest cases are amenable to treatment.

A very common form of chronic sore eyes is that in which there is slight injection of the conjunctiva, some secretion of muco-pus, epiphora, feeble vision, and intolerance of light to such an extent that sometimes the patient can not go in the

open air without the eyes shaded, and in some cases can not bear the light at all. In other cases we find associated with this condition a tendency to the formation of phlyctenula, or there may be but a single ulcer on the cornea, which may continue with but little alteration for weeks or months. In other cases there is a tendency to the formation of small pustules on the ocular conjunctiva the inflammation being re-lit up on slight exposure.

The most persistent form of the disease is *granular* conjunctivitis, which may last for years, the patient having partial use of his eyes, but being unable to follow any business from feebleness of vision and irritation attending any exertion of the eyes. It may result from catarrhal or purulent ophthalmia, especially if neglected or improperly treated. On examining the eyes we find that they have an unnatural fullness, which is caused principally by thickening of the mucous membrane of the lids. On everting the eyelid, we find the conjunctiva irregular on its surface, what are termed granulations, being from the size of the head of a pin to that of a hemp seed. It presents a fungous and spongy appearance to the sight, and gives the same sensation when touched. Frequently there is an uniform deep redness of the entire surface, seeming like red velvet, or the fungous enlargements being in patches, they are reddened while the intervening space is natural in color. In other cases, it seems to be mottled with small, yellowish points. "Superficial vascularity, thickening and opacity of the upper half of the cornea, often exist with granular conjunctiva, and have been attributed to the friction exerted on it by the rough surface. This does not, however, appear to be the case, for vascularity, thickening and opacity of the conjunctiva-cornea are met with in cases in which granular conjunctivitis does not exist, and may be absent in cases in which granular conjunctiva is much developed. The morbid condition of the cornea just mentioned is rather the result of the extension of the same inflammation which first gave rise to the granular conjunctiva, though there can be no doubt that it is kept up and aggravated by the friction exerted by the granular surface of the palpebral conjunctiva."—(Jones.)

The general health is variously affected in these different forms of chronic conjunctivitis. The first variety is frequently kept up by dissipation, imprudence in eating, damp and ill-ventilated dwellings, and in my opinion, by want of cleanli-

ness, and cutaneous irritation or disease consequent upon it. In phlyctenular ophthalmia the general health is much depressed, and the various functions are imperfectly performed. It is said to be *scrofulous*, but my observation has shown me but two instances in quite a number of cases. It may, however, be always considered as a disease of debility, and indicative of imperfect nutrition. The pustular form of the disease is almost invariably associated with some constitutional cachexia—two cases in my practice were connected with gonorrhœa, three with chronic diarrhœa, and one with syphilitic rupia. Granular conjunctivitis may occur with depression of the system, or with a full habit of body.

TREATMENT.—In the first form of the disease we would regulate as far as possible the patient's habits, stimulate secretion from the skin and kidneys, using the bath thoroughly and frequently. The bowels should be kept in a soluble condition, and this may be usually accomplished by the administration of the Compound Tincture of Corydalis and Iodide of Potassium, and the other secretions stimulated at the same time. The Compound Pill of Hydrastin, Quinia and Podophyllin may be used in preference to the remedies named, if there is much debility. If there is any reason to suppose that the disease is connected with rheumatism, we would give \mathcal{R} , Extract of Conium, 3ss; Iodide of Potassium, 3j; Tincture of Maerotys, f3j; Aqua, f3iij; \mathcal{M} .; in doses of a teaspoonful four or five times a day. Counter-irritation is among our most important curative measures, and hence, in many cases, I prefer the fly-blisters, first before and then behind the ears, so as to make it perpetual. As a collyrium, I frequently use, \mathcal{R} , Extract of Belladonna, gr. xx; Tincture of Gelseminum, 3ij; Hydrastin, gr. v; Aqua, 3iv; \mathcal{M} ., and drop in the eyes three or four times daily. In place of this I have used, \mathcal{R} , Glycerin, Vinum Opii, āā, f3j; Chlorate of Potassa, 3ss; Aqua, 3ij; \mathcal{M} . In other cases, stimulants answer a better purpose, and I adopt Dr. Hill's method of using the Tincture of Myrrh or Capsicum, and though it is very painful it is often effective.

In chronic *phlyctenular* ophthalmia, it is necessary that the general health should be improved, and we bend all our means to the accomplishment of this object. In some cases we will find a coated tongue and feeble digestion, with torpidity of the entire system; here a thorough emetic will not only be of immediate benefit, but will prepare the way for other medi-

eines. The Compound Tincture of Corydalis, with Iodide of Ammonium, has seemed to answer better in my hands than other alteratives, and I have usually associated with it Quinia, Hydrastin, and Iron. _In some cases, Cod-liver Oil and Rye Whisky has seemed to benefit the patient in every respect, improving the appetite and the power of digestion, and in proportion to this the condition of the eye. The Salt-water bath with brisk friction, especially to the spine, is an important aid. The patient should have a full and nutritious diet, and occasionally a small quantity of malt liquor is serviceable. Open-air exercise is sometimes useful, especially in cases where but one eye is affected, as it can be covered to prevent irritation.

Counter-irritation by means of the continuous blister as heretofore named is among our most important means. The collyrium of Belladonna, and of Glycerin, Opium, and Chlorate of Potassa, may be used with advantage, or in occasional cases we may use a solution of Nitrate of Silver or Sulphate of Zinc, from four to six grains to the ounce of water. The stimulant plan of treatment usually gives the best results, and I prefer to alternate it with a sedative. Thus, the eye may be stimulated with the vapor of Bi-sulphide of Carbon, 3j, being added to one ounce of boiling water, and placed in an eye-glass or close vessel with a funnel leading to the eye to prevent the escape of the vapor. It may be continued for two or three or ten minutes, or until it smarts pretty freely and starts the tears, and should be repeated once or twice a day. In the intervening time, the Belladonna and Gelseminum lotion, or stimulating collyrium should be employed.

In *granular conjunctivitis*, I know of but one way to cure the disease, and that is to remove the fungous growth with a scalpel. What is termed clipping or scarifying the granulations, is worse than useless in many cases, and advantageous in none. A sharp scalpel being held with the edge at right angles to the lid, should be moved across it so as to *scrape* the fungous growth off. This should be repeated every day or every other day until removed, or should irritation come up after several operations, they should be suspended until it is arrested. It might be supposed that great irritation would result from this rough procedure, but this is not the case, no unpleasant sensations following it. Care must be used not to injure the puncta lachrymalia, as permanent epiphora might be produced by their injury. The usual plan of treatment is

cauterization with a crayon of Sulphate of Copper or Nitrate of Silver, but both are notoriously unsuccessful. With the plan above advised, no collyria or local applications are necessary, except occasionally a Belladonna lotion. The general treatment should be adapted to each individual case, the secretions being kept free.

RHEUMATIC OPHTHALMIA.

In the preceding affections the conjunctiva was the seat of the inflammation; in this form it is situated in the sclerotic coat. Like other forms of rheumatism, it is produced by cold, sudden atmospheric changes, dampness, etc., but it does not seem to attack persons of a rheumatic diathesis more than others, and a metastasis of the disease from or to the eye is never observed. Hence, it must be confessed that there is no other reason for the name than that it resembles rheumatism in its exciting causes, and in its accompanying pain and exacerbations.

SYMPTOMS.—Rheumatic ophthalmia makes its appearance with a sensation of heat and dryness in the eye, and stinging, darting pains passing from the globe of the eye into the orbit, and sometimes to the forehead, temples and face. When the disease becomes fully developed, this pain is very severe, and seems to involve the entire orbit, but is usually the most intense about the superciliary ridge. It never ceases entirely, but becomes much modified in the morning, and very intense in the evening and fore part of the night. Occasionally the pain is of a deep, pulsating or throbbing character, and sometimes tearing or tensive. Most generally we find constitutional symptoms developed, the secretions being arrested; the skin especially is dry, and there is considerable excitation of the pulse during the paroxysms.

In pure rheumatic ophthalmia we find the lids entirely free from disease, and no muco-purulent secretion. The redness is confined to the globe of the eye, and is not in the conjunctiva, as is readily determined by moving it, when it is seen to pass over the dilated vessels. The redness is also different, and is seen to consist of fasciculi of vessels advancing in radii to the edge of the cornea. Most generally the iris is slightly discolored, greenish, and its movements are sluggish; the pupil is contracted, and but little changed by light. Dimness

of vision is always present, depending upon a haziness of the cornea and pupil; but then there is little if any intolerance of light. In many cases the disease assumes a catarrho-rheumatic character, in fact, these are of far more frequent occurrence than pure rheumatic ophthalmia. In this case we have the symptoms of rheumatic ophthalmia associated with the catarrhal, and of necessity a very painful and severe disease. Here, the conjunctiva is involved, and it is difficult to distinguish the local symptoms of inflammation of the sclerotic, and we are usually guided by the character of the pain, and the evidence of partial iritis.

PROGNOSIS.—This form of ophthalmia yields readily to treatment if taken in time, but if allowed to progress, or badly treated, the pupil may close, or the anterior crystalline capsule be left opaque.

TREATMENT.—If there is derangement of the stomach and a coated tongue, I should employ an emetic of the Compound Powder of Lobelia and Capsicum, followed by an infusion of equal parts of *Asclepias* and *Eupatorium* to continue diaphoresis. In other cases we might use the warm bath or the vapor bath, and give equal parts of diaphoretic Powder and *Asclepin*. Having once obtained free secretion from the skin, we should maintain it by the use of small quantities of some diaphoretic, as the Diaphoretic Powder, or, \mathcal{R} , Essl. Tincture of *Asclepias*, 3j; Tincture of *Macrotys*, 3ss; Carbonate of Ammonia, 3j; Simple Syrup, 3jss; \mathcal{M} ., and give in teaspoonful doses every two or three hours. The bowels should be kept moderately open, and nothing will be found better for this purpose than the *Podophyllin* Pill, with Extract of *Hyoscyamus*. A very good combination in these cases when secretion has been once established, is, \mathcal{R} , Extract of *Conium*, 3ss; Iodide of Potassium, 3j; Tincture of *Maerotys*, f3j; Water, 3iij; \mathcal{M} ., and give in teaspoonful doses every four hours. To meet the evening exacerbation, we usually employ the warm pediluvium, and give the Diaphoretic Powder in such doses as to produce perspiration. In some cases full doses of Quinia will answer a good purpose.

Counter-irritation before and behind the ear, and to the nape of the neck, is sometimes beneficial, but not to as great an extent as in the preceding cases; it will be used with more benefit in the decline of the disease. Eye-waters are useless, and the stimulant ones absolutely injurious in this form of the

disease. The eye may be washed in tepid or warm water, and a dry compress applied lightly, or in some cases fomentations of warm water, a soft sponge being used for the purpose, will be of advantage. To relieve the circum-orbital pain, nothing will be more efficient than Extract of Belladonna rubbed up with Tincture of Opium, and applied around the eye. It is very necessary that the pupil should be kept well under the influence of Belladonna, to prevent structural change. Nothing so controls the inflammatory action in this disease as the remedy just named; if used with the Laudanum, that will usually be sufficient, if not, the lids may be painted with the softened extract.

In cases of catarrho-rheumatic ophthalmia, we would use the general treatment recommended for this disease, counter-irritation and the local application of Laudanum and Belladonna to relieve the pain. All irritant collyria must be discarded, and instead we would employ Belladonna with Gelseminum, or Aconite and warm fomentations.

IRITIS.

Iritis has been divided into several varieties by authors, but without any good reason that I could ever perceive. We might distinguish the syphilitic with advantage, and that occurring in scrofulous ophthalmia, but the others may be grouped under the simple head of iritis. We have already seen that partial iritis was developed in that form termed rheumatic, and as the idiopathic iritis bears a very close relation to it, it is generally termed rheumatic. The causes of the disease are the same as those giving rise to rheumatic ophthalmia, though it sometimes comes on very insidiously, and without apparent cause.

SYMPTOMS.—Dimness of sight and fatigue in using the eye is generally the first symptom, and may continue for several days before the disease is fully developed. Soon the globe becomes sore when pressed upon or when moved, and injection of the circum-corneal vessels is noticed. The pain now becomes severe, with a feeling of extreme distension of the eyeball, and dull pain extending to the orbit and forehead. There is much intolerance of light, with increased secretion of tears when the eye is exposed. There is usually considerable fever, with coated tongue, constipated bowels, dry skin

and hard pulse; it is remittent in character, coming on in the evening, with an increase of pain, as in rheumatic ophthalmia. Dimness of vision and haziness become very prominent when the disease is fully developed.

If we examine the eye, we will notice a redness situate beneath the conjunctiva, and formed of vessels passing in radii toward the cornea; usually it is not deep, but in some cases the color is increased by more or less involvement of the conjunctiva. The pupil is contracted, and the motions of the iris impaired, and its color changed: "first, in the lesser circle, which becomes of a dark hue, and afterwards in the greater, which grows green, if it had been grayish or blue; and reddish if it had become dark-colored. This change of color is a never-failing index of the substance of the iris being inflamed, and is apt to continue after all the other symptoms of iritis have been subdued." When the disease is severe, the pupil loses its circular form, and becomes oval or irregularly dentated.

Syphilitic iritis can rarely be distinguished from that just described; the fact of a syphilitic taint existing is the reason for the division, and in these cases iritis is almost invariably dependent upon the syphilitic poison. Some writers base a distinction on the scattered or furuncular appearance of the redness for some time, and upon the rusty color of the iris near its pupillary margin. The detection of syphilitic disease makes the diagnosis certain. Iritis may come up during a protracted attack of gonorrhœa, and hence has been described as gonorrhœal iritis. It is not produced by inoculation as in gonorrhœal ophthalmia, but by constitutional infection, as in the case of gonorrhœal rheumatism and synovitis; it has no distinctive features by which it may be determined from other forms.

"*Chronic primary scrofulous iritis* is characterized by the age of the patients, who are generally children under puberty; its slowness compared with the progress of the other species; the disease being generally attended with but slight pain, the inflammation in a great measure confined to the serous covering of the iris, and productive of very little lymphatic effusion. In such cases, zonular effusion of the sclerotica, greenness and darkness of the iris, and fixedness of the pupil may often be observed for many weeks together, without any further morbid change, so slow is the progress of the disease. There is

also, in many cases, little or no pain or fever, and the patient often sleeps well. At length the pupil is observed to be tagged to the capsule, the capsule becomes partially opaque from effused lymph, while, the disease spreading to the retina, vision is more or less seriously impaired. Allowed to proceed in its course, the disease is now attended with more pain in and around the eye, and sometimes with considerable intolerance of light. The iris bulges forward toward the cornea, the pupil is obliterated, and the cornea and anterior half of the eye become convex; myopia, hardness of the eye and amaurosis, follow more or less promptly. In some cases the eyeball becomes baggy and atrophied. In other cases inflammation and thinning of the sclerotic supervene.

PROGNOSIS.—The prognosis in iritis is usually favorable if proper treatment is adopted, but if neglected or improperly managed, it frequently results in opacity of the capsule, obliteration of the lens, or involving the retina produces amaurosis, or the cornea, producing opacity.

TREATMENT.—At the commencement we would freely open the patient's bowels with a stimulant purgative, as \mathcal{R} , Podophyllin, gr. ss; Jalap, Ginger, āā , gr. x; Bi-tartrate of Potassa, 3ss; \mathcal{M} ., and repeat it every four or six hours until the desired effect is produced. Associated with this, to relieve the febrile action and favor diaphoresis, we would give, \mathcal{R} , Essl. Tincture of Aselepias, 3j; Tincture of Macrotys, 3ss; Tincture of Aconite, gtt. xx; Water, 3ijss; \mathcal{M} ., and give in teaspoonful doses every one or two hours until the skin becomes moist, and afterwards less frequently to continue the effect. Acetate or Citrate of Potassa may be added to the patient's drink, so that he will take from one to two drachms in the twenty-four hours. Associated with these means we would use the warm bath or vapor bath, and every evening the hot foot bath. In many cases we find that the patient is greatly benefited by the use of Quinia and Hydrastin, to the extent of from four to six grains of each daily. Turpentine in doses of from gtt. xx to gtt. xl, every four hours, may be employed in addition, especially when the disease is at its height. For the relief of the pain at night, and to give rest, Opium should be used in doses sufficient for the purpose, usually two or three grains, or Sulphate of Morphia half a grain. The combination of Conium, Macrotys, and Iodide of Potassium will be found valuable in protracted cases.

If the inflammation is acute, I usually employ small cups applied to the temple, and before and behind the ear, with scarification if it is thought necessary, and if this is not deemed sufficient, a small blister to the back of the neck or behind the ear. To relieve the severe circum-orbital pain, nothing will be found more efficient than Extract of Belladonna, rubbed up with Tincture of Opium. Vaporizing the eye and side of the head with hot water, or the employment of warm fomentations, will sometimes give temporary relief, but must not be substituted for more important remedies. One of the principal objects of the treatment, and that upon which success mostly depends, is, keeping the pupil constantly dilated. This may be effected by painting the eyelids and brow with Extract of Belladonna, rubbed up with a small quantity of water. As this is frequently objectionable to the patient from its disagreeable odor, and unpleasant sticky sensation, it may be replaced with a solution of from three to five grains of the Sulphate of Atropia to the ounce of distilled water. Of this a drop may be put in the eye once or twice in twenty four hours, or oftener than this if required to effect the object.

In syphilitic iritis I employ the Podophyllin, associated with tonics and Iodide of Potassium or Iodide of Ammonium. We may use the remedies in the following form: \mathcal{R} , Podophyllin, gr. x; Hydrastin, Quinia, āā , 3j; Extract of Hyoscyamus, q. s; M., and make sixty pills, of which one may be given every two hours daily, until it operates two or three times on the bowels. This will act kindly, and is not debilitating, and is the most efficient alterative I have used in these cases. The Iodide of Potassium may be given in from two to five grain doses every three or four hours. The local treatment will not differ from the preceding case.

In chronic scrofulous iritis we find it good practice to commence the treatment with a thorough emetic, and repeat it as often as the tongue becomes loaded and the appetite impaired. The tonic and alterative pill above named may be used; or we may give the Compound Tincture of Corydalis and the tonics separate. Iron in some form should be used; I frequently prescribe the Carbonate, or the Citrate. Cod-liver Oil is frequently beneficial, especially in cases where the general health is much reduced. The daily use of the Salt-water bath, or in some cases using the same warm, or the wet sheet

pack, following in some instances with the douche, and in all with brisk friction, is an important addition to the treatment. The local measures will not be changed, though in this case permanent counter-irritation is advisable.

PHLEGMONOUS OPHTHALMIA.

Inflammation of the entire eye is not of frequent occurrence, but occasionally a case will be met with. It results most frequently from injuries, and sometimes follows operations on the eye, especially couching for cataract, and for artificial pupil. It also occurs during the progress of the eruptive fevers—small-pox, measles, and scarlatina, and may result from cold or other causes of inflammation.

SYMPTOMS.—The suffering in this disease is very severe, the pain being hot and burning, and extending through the entire eye, and to the structures contained within the orbit, and increased by movement of the eye or even the body. In addition to this, there is a deep seated throbbing pain in the eye-ball as if it would burst, and darting pains extending to the temples, forehead and occiput. There is generally great intolerance of light, and abundant secretion of tears. The constitutional symptoms are generally marked, and occasionally there is delirium.

On examination we will find the eyelids swollen, and the eye prominent, the edge is red, and the chemosis marked; and we will observe that there is marked tumefaction of the cellular tissue. The cornea, frequently, is more or less opaque, and there is sometimes ulceration. "In this stage the inflammation may be arrested, in which case, with diminution of the pain, the swelling of the eyelids, the prominence of the eye-ball, and the chemosis subside. In proportion as the redness of the white of the eye is dissipated, any ulceration of the cornea heals, the iris recovers something of its natural appearance, but the sight remains more or less impaired, if not abolished. If this favorable turn is not brought about, but on the contrary the disease advances, all the symptoms become aggravated and suppuration takes place, being ushered in by a feeling of weight and cold in the eye, and general rigors. In consequence of accumulation of matter in its interior, the eye-ball becomes much distended and enlarged, so that it pro-

trudes still more from the orbit. The cornea is infiltrated with matter, and projects from the bottom of the fossa formed by the chemosed conjunctiva. With the supervention of suppuration, the suffering not only does not abate, but actually increases, in consequence of the strong outer tunics of the eyeball not readily yielding to the distension from the accumulated matter. At last, however, the eyeball bursts by the cornea or sclerotica giving way, and the abscess, together with blood and the humors of the eye, are evacuated. The pain, which before this was of the severest character, is now at once greatly relieved, and afterwards gradually subsides."—(Jones.)

PROGNOSIS.—This is the most dangerous form of ophthalmia, and if not promptly relieved in the early part of its course, will almost certainly result in loss of vision, if not in complete loss of the eye.

TREATMENT.—Active but not debilitating measures should be employed with the first evidences of the disease. We would give a brisk purgative, as, *R*, Podophyllin, gr. ss; Compound Powder of Jalap and Senna, 3j; Bi-tartrate of Potassa, 3ss; and repeat it in six hours if necessary. The spirit vapor bath may be used with advantage, giving the Compound Tincture of Serpentaria, and Essl. Tincture of Aesclepias in doses of a teaspoonful every hour until free diaphoresis is induced. As soon as the patient becomes faint from the use of the bath, place him in bed, apply warmth to the extremities to continue the action, and add a sufficient amount of the special sedatives to control the pulse. Cups applied to the temples and to the nape of the neck, should not be omitted, and these should be followed by cold applications, and the use of equal parts of Tincture of Aconite, Belladonna and Opium around the orbit.

The object of the above treatment is to arrest the inflammation before suppuration commences, and sometimes we will succeed. If not, warm fomentations may be substituted for the cold water dressing, the bowels kept open by a gentle purgative, and a mild diaphoretic and sedative combined, with a sufficient quantity of Opium to control pain. If there seems to be much general depression, Quinia and Hydrastin may be employed, with as much stimulus as may be necessary. If the eye-ball becomes very much swollen and painful from effusion and formation of pus, it will be necessary to

puncture the cornea or sclerotica to relieve the suffering, prevent entire destruction of the globe of the eye, or sometimes dangerous disease of the brain, or sympathetic irritation of the other eye. These punctures permit the escape of the aqueous humor and lessen the distension, and at last give exit to the pus. In some cases the inflammation of the cellular tissue of the orbit results in suppuration, and in consequence the eye is thrown very much forward and the pain is severe. If it continues it may endanger the integrity of the brain, and terminate fatally. In this case it is necessary to open the ocular capsule, which is done by dividing the conjunctiva at the internal angle of the eye, passing the lancet close to the globe, and rather toward the lower eyelid, until it reaches the accumulation. "This being done, there is an immediate gush of serous fluid mixed with pus; the globe of the eye falls back, and the cornea becomes flaccid, showing that the cause of the excessive hardness and projection of the eye existed behind it, and not in the organ itself. In such cases the opening of the capsule ought to be had recourse to early, and not delayed until the eye is disorganized or the patient sinking into a state of coma. The operation is simple, and is likely to save both the eye and the life of the patient."—(Mackenzie.)

OPACITY OF THE CORNEA.

Opacities of the cornea are distinguished by different names according to their density and the character and situation of the lesion. *Nebula* is the slightest degree, and is most generally situate in the superficial layers, though occasionally deep seated; sometimes it is general, and is the result of pressure, or serous effusion into the substance of the cornea. *Allbugo* is that form of opacity in which the spot has a pearly appearance, and generally results from effusion of plastic lymph, in the anterior layers of the cornea. It usually results from phlyctenula which have receded without bursting. *Leucoma* is an opaque cicatrice closing an ulceration; it has usually a contracted and circumscribed appearance, and is depressed in its centre.

TREATMENT.—"All the three kinds of speck—*nebula*, *albugo* and *leucoma*, have a natural tendency to disperse as soon as the disease giving rise to them subsides or is removed, and

whether they depend on primary inflammation, spreading to the cornea, or secondary inflammation of that part arising from the irritation of inverted eyelashes or granular conjunctiva. We must, then, in every case, endeavor to remove the ophthalmia or the mechanical irritation on which the opacity depends, assured that if we succeed in this, nature, by the process of absorption, will accomplish the whole amount of recovery which is possible. In children and young persons many very dense and extensive opacities are removed in the natural process of growth, which would be quite immovable in adult life.”—(Mackenzie.)

Patience and perseverance are the great elements of success in these cases, and abundant time, from three months to as many years, is necessary to the accomplishment of the purpose. The inflammation should be entirely removed in the manner heretofore named, and if the person is scrofulous this should be counteracted as much as possible and the general health improved. Frequently this is all that is necessary, the opacity disappearing as the inflammation is removed. If after this we deem it necessary, we prescribe a mildly stimulant collyrium, as, Wine of Opium, pure or diluted, Gelsemium as heretofore recommended, Sulphate of Zinc or Nitrate of Silver, from two to eight grains to the ounce of water, and Glycerin, are some of the means that may be made use of. The Bi-sulphide of Carbon may be used as heretofore directed, as a stimulant to the eye, and will answer a good purpose. In other cases, all that is necessary is to give nature sufficient time to remove the deposit; and to prevent injurious meddling with the eyes, we will in these cases prescribe some mild and grateful application simply to occupy the attention of the patient and prevent discouragement.

AMAUROSIS.

Under the head of amaurosis formerly were grouped all those affections in which the vision was impaired, without outward evidence of disease. The ophthalmoscope has now, however, brought to light various diseased conditions of the internal parts of the eye, and somewhat restricted its application. Feeble or imperfect vision or complete loss of the eyesight, there being no perceptible cause for it, is amaurosis.

Dr. Jones enumerates three conditions giving rise to this affection, and upon which it essentially depends: 1st. Congestion of the optic nerve and its effects. 2d. Exhaustion of the optic nervous apparatus. 3. Pressure on some part of the optic nervous apparatus. The causes giving rise to the first are: exposure of the eyes to strong heat and light in those who work before large fires, etc.; over-exertion of the sight; forced exertion of the body while stooping the head, especially in plethoric or drunken persons; pregnancy; sudden suppression of discharges, the menstrual, perspiratory, hemorrhoidal, purulent, etc.; gastro-intestinal irritation; irritation of the nerves of the fifth pair; passions of the mind. In the second case, it is caused by great losses of blood, excessive secretion, protracted suckling, seminal losses, from the depressing emotions, and from low and exhaustive diseases. In the third case, there will usually have been symptoms preceding the loss of sight, indicating the character of the affection; though in some cases, as when it results from the presence of a clot or other formation within the cranium, the amaurosis may have been the first symptom.

SYMPTOMS.—In many cases there are no symptoms of disease, either of the eye or brain, further than a gradual loss of vision, it seeming as if a film was slowly forming before the eye. In others the loss of sight is sudden, and more or less complete. While, in a third class of cases, the loss of vision is gradual, and attended with pain in the head, dizziness, vertigo, etc., indicating disease of the brain. In some cases of partial amaurosis we find that vision is better one day, and worse another, or that objects are better seen in one direction than another, or when moved before the eyes; sometimes in a bright light, at others in a dull light. Occasionally there will be ocular spectra, *muscæ volitantes*, double vision, confusion and distortion of objects, etc. If we examine the eyes closely we will find the pupil more or less dilated, and but slightly susceptible to light, though in some cases it is as sensitive as in health.

DIAGNOSIS.—We diagnose amaurosis from cataract, by the fact that the opacity is easily recognized, the movements of the pupil are natural, and vision is better in a dull light; from inflammatory disease of the internal tunics of the eye, by the absence of pain and intolerance of light, and by the immobility of the pupil. Amaurosis is distinguished from *glaucoma*

by the extreme hardness of the eye, the persistent pain, and peculiar, greenish-opaque appearance.

PROGNOSIS.—In the first case the prognosis is far more favorable than in the other two, for if seen early, and the exciting causes can be avoided, we may hope to give relief. In the second and third cases we may relieve some few, but the majority are incurable.

TREATMENT.—As will be noticed, there is a marked difference in the pathology of these cases, and consequently there will be great difference in the treatment. When we have reason to believe that it results from congestion we would give brisk, stimulant purgatives, use cups around the eyes, counter-irritation to the spine, and alkaline diuretics. If of some duration, we would employ the tonic and alterative plan recommended previously, with counter-irritation before and behind the ear, and to the nape of the neck. In addition we may use the *Nux Vomica* and *Strychnia* with advantage, and in some cases Electricity. In the second class of cases, we would adopt a tonic and sustaining course of medicine, with Cod-liver Oil, the bitter tonics, Iron, Sulphur, and Phosphorus. Here we may occasionally obtain the most marked beneficial results from the use of *Nux Vomica*, *Belladonna*, *Ergot*, etc., as named under the head of paralysis. Electricity may also be employed with some advantage, a gentle current being passed from the occiput through the eye, the anterior pole being covered with a piece of soft sponge, and applied directly to the eyeball. If the amaurosis has resulted from pressure, it may, if from a tumor, be removed by an operation; but if within the cranium we will have to treat the case according to the indications as they may be developed.

GLAUCOMA.

This name is applied to a peculiar disease of the eye, in which it presents a greenish appearance, deep behind the pupil. It usually comes on slowly, requiring years before it involves the structure of the eye so as to produce complete loss of vision; in other cases these changes take place in a few months. The causes of glaucoma are obscure, as is also its pathology. Some have contended that it was dependent upon a chronic inflammation of the internal structures of the

eye, while later observers, especially Mr. Hancock, believe it to be due to obstruction of the circulation by spasmodic or tonic contraction of the ciliary muscle, or as it is usually termed, ciliary ligament. It most usually commences after middle age, though occasionally cases are seen between the ages of twenty-five and forty.

SYMPTOMS.—The symptoms are variable and the disease seems to have no connection with the general health of the patient. In acute cases there is a more or less sudden accession of deep-seated, tensive pain in the eyeball, which is seen to be somewhat injected, and is hard, when pressed upon with the fingers. The pupil is usually irregularly dilated, and the field has a peculiar muddied appearance, and vision is more or less impaired. If not promptly arrested it gradually passes into the chronic form, with such structural changes as ultimately destroy vision. In the chronic form of the disease it may have been progressing for months or even years without attracting attention, though sometimes amaurosis results in the first stages, and before the hardness and greenish opacity is much developed. In the second stage of the disease vision gradually declines, but without pain or any external marks of the disease. If we examine the eye closely, we will find the greenish, muddy appearance well marked, and the eye hard to the touch. In the third stage, we have immobility, and unequal dilatation of the pupil, a varicose condition of the external vessels, and marked hardness of the eye on pressure. There is also, frequently *muscæ volitantes*, fiery and prismatic spectra and ocular delusions. “In this stage the choroid is inflamed; effusion takes place upon its internal surface; the retina is compressed; the vitreous tissue is disorganized, and superabundant watery secretion comes to occupy its place. For a time the eye may continue sensible to objects placed to one side or the other of the patient, while in every other direction nothing is distinguished.” In a later stage the crystalline lens becomes opaque, and passing forward through the pupil touches the cornea, which being irritated ulcerates and gives way, permitting the escape of more or less of the contents of the eye, which becomes shrunk and atrophied.

PROGNOSIS.—The prognosis in glaucoma is very unfavorable; except in the first and second stages there is no chance of arresting the disease. Even when it appears in but one

eye, we have reason to suppose that the other will also be involved.

TREATMENT.—An active alterative course of treatment at the commencement of the disease may prove successful; but it should be combined with tonics to prevent debility. The Podophyllin Pill, with Compound Syrup of Stillingia and Bromide of Potassa, and a suitable quantity of Quinia and Hydrastin, will answer a good purpose. The skin should be stimulated to action by the use of the warm or cold bath, as seems best adapted to the case. In the acute affection these means should be thoroughly used. Rest to the eyes is of absolute importance, and to remove excitation we would use the irritating plaster, or other counter-irritant. The fever may be controlled by the internal use of Belladonna or Aconite, or in some cases Opium.

Three operations have been performed for the relief of glaucoma, two of which may be employed in the early stage of the disease. They are, first, *iridectomy*, or the removal of a portion of the iris, either by an incision through the cornea or sclerotica; and secondly, the division of the ciliary ligament or muscle. The third, or extraction of the lens, has not been attended with success.

CATARACT.

Opacity of the crystalline lens is called cataract, of which two varieties are now described, the *hard* and *soft*. The causes of cataract are imperfectly known, but they are such as give rise to mal-nutrition of the lens. No pain attends its formation, and the patient is sensible of the disease only by the continually increasing loss of vision. For some time it will be noticed that the patient can see better in a subdued than in a bright light, and at last only in a darkened room, or in the evening. In some cases vision is almost entirely lost, the person only being able to distinguish day from night. We frequently find but one eye affected, and the other may remain sound through life, though it is usually affected sooner or later. Usually there is but little difficulty in its diagnosis, the pearly appearance of the lens, the perfect mobility of the pupil, some degree of vision in a dull light, and the history of the case is sufficient. The only disease with which it could

readily be mistaken is glaucoma, and that is a very rare affection. Its treatment is entirely surgical, no remedies having any influence over its formation or progress.

DISEASES OF THE LACHRYMAL APPARATUS.

The lachrymal gland is so protected within the orbit that it is rarely the seat of disease. Inflammation sometimes occurs, and is marked by pain in the region of the gland and dryness of the eye from arrest of secretion. When the inflammation subsides there is usually too free secretion and epiphora, but this soon subsides. It should be treated as any other inflammation.

Inflammation of the lachrymal sac is of frequent occurrence, and requires care in its management. It makes its appearance usually as a diffused, erysipelatous-like redness and swelling of the parts near the internal canthus, with deep-seated pain, and more or less irritation of the conjunctiva, increased lachrymation, and passage of the tears over the eyelid. This inflammation continuing for some days, the parts become much swollen and very painful, and at last pus having formed, it discharges through the integument. In some cases the pus finds its way through the lachrymal canals by pressure, and the inflammation becomes chronic, but without the formation of a fistula. Usually there is lesion of the nasal duct, which remains permanent unless an operation is undertaken for its removal, though sometimes the closure of the nasal duct is the primary affection, the inflammation of the lachrymal sac being caused by it.

At the commencement of the disease, the local application of equal parts of Tincture of Aconite and Belladonna to the part, or painting it with Tincture of Muriate of Iron, or Compound Tincture of Iodine, will remove inflammation and prevent suppuration. A brisk purgative, followed by the hot foot bath and an active diaphoretic, occasionally proves useful. If pus forms, an incision should be early made for its removal, thus preventing change of the lachrymal sac, and especially distension, and permanent closure of the nasal duct. An injection of ten or twenty grains of Sesqui-carbonate of Potassa to the ounce of water, will now assist very much in effecting a speedy cure. As soon as the inflammation subsides, if the nasal duct seems closed, a style should be inserted.

Closure of the nasal duct, producing *fistula lachrymalis*, frequently results from the above inflammation, though it may be produced by injuries of the bones or soft parts, or an extension of inflammation to its mucous lining from the nose, or from the conjunctiva. In a majority of cases there is a fistulous opening over the lachrymal sac, or a continuous suppuration and discharge of pus at the internal canthus, through the puncta, with more or less frequent attacks of acute inflammation of the sac, and discharge through the integument. In some of these cases a fungous-looking mass, of considerable size, is found upon the site of the lachrymal sac, which is constantly discharging pus mixed with tears. This, and the constant flowing of the tears over the eyelid, is very unpleasant, and occasionally it keeps up continuous irritation of the eye, and causes imperfect vision. The disease is only cured by an operation, which consists in opening the lachrymal sac and introducing a silver style made for the purpose. The usual means to relieve irritation are then made use of, and the style retained until there is evidence of the free passage of the tears and restoration of the mucous membrane lining the duct, when it is removed and the external opening allowed to heal.

The *puncta or canaliculi* may be obstructed from inflammatory action, and occasionally from other causes. In these cases there is also the overflow of tears and irritation of the lid. If it is produced by inflammation, the means heretofore named may be used to arrest it. If from other causes an Anel's probe may be passed into the puncta and through the canaliculi into the sac, with the result of removing the obstruction.

The *caruncula lachrymalis* is sometimes the seat of inflammation very similar to that in ophthalmia tarsi, and by displacement of the puncta will produce watering of the eye. It sometimes gives rise to considerable uneasiness and pain. It may be treated in the same manner as the other inflammations named, but when persistent is best removed by the use of the mild Zine Ointment, or Ophthalmic Ointment. Occasionally they are the subject of chronic enlargement, forming a red, soft, tuberculated tumor, of considerable size, which bleeds readily on pressure. It may be occasionally removed by the application of a saturated solution of Tannic Acid, or

the solid Nitrate of Silver, but in many cases will have to be excised, one half or more being cut away, the remainder disappears.

Pterygium.—This is strictly a disease of the conjunctiva, and consists of a thickening of a circumscribed portion of it extending between the internal canthus and the cornea, though occasionally it is found on the temporal side. It is divided into two kinds, the membranous and fleshy, both kinds being triangular, with their apex towards the cornea. It commences from without, and grows inward, occasioning but little disturbance until it reaches the cornea. If it commences to involve the conjunctivæ-cornea, it gives rise to irritation, and may be attended with serious consequences. It may be arrested by cauterizing with Nitrate of Silver, or other escharotics, but the easiest plan is to dissect off the half next the cornea when the remainder will generally disappear without trouble.

OTITIS.

Quite a number of different affections have been grouped together under the head of otitis, and as they are all inflammatory, present similar symptoms, and require nearly the same treatment, it will hardly be worth while to endeavor to make the distinction. Inflammation of the external auditory meatus and cavity of the tympanum are usually produced by sudden changes of temperature, though it may be caused by the introduction of irritants or even from accumulation of cerumen.

SYMPTOMS.—Inflammation of the external auditory meatus commences with a feeling of stiffness, fullness and uneasiness about the meatus, which is increased when the ear is pressed upon. In a short time the pain becomes very severe, is tense, darting, lancinating, and seems to affect the entire side of the head to some extent. Frequently there are marked chilly sensations with the accession of the severe pain, and these are followed by febrile reaction. On examination we will find the lining membrane of the meatus tumid and red, sometimes swollen so as almost entirely to close the opening. The pain continuing for from two to six days, secretion takes place, or pus is formed and discharged, sometimes in considerable quantity. At first it is usually thick, but at last is thin,

and in some cases is secreted in very large quantity. The discharge continuing for a short time, the symptoms of inflammation entirely disappear, and the part is restored to its normal condition.

Acute inflammation of the cavity of the tympanum, is a far more serious affection, and may result in permanent impairment of the hearing, or even in death by extension to the brain. In children this is usually very severe at night, with comparative ease during the day, though the child is restless and irritable. There is usually considerable fever at night, and even during the day; the skin is dry and the pulse hard.

"In the adult this affection is usually of a much more formidable nature, and it sometimes has a rheumatic or gouty character. The first symptom is a sense of uneasiness in the ear, which becomes painful during motion, pressure on the organ, the act of deglutition, or the use of the pocket handkerchief. This uneasiness soon amounts to continuous pain, which in severe cases, rapidly increases until it becomes so intense as to be scarcely endurable, and extends over the mastoid process, the whole of the affected side of the head, down the neck, and into the fauces. The power of hearing rapidly diminishes, and a variety of the most horrible sounds are experienced, sometimes described as like the hissing and puffing of a steam engine, varied by others like a series of explosions in the ear, or the ringing of bells. A symptom of this affection, which adds greatly to the suffering of the patient, is the impairment of the functions of the brain, sometimes amounting only to a confusion of ideas, frequently accompanied by extreme fever and depression of the nervous system, causing the worst forebodings as to the result of the attack; in other cases, delirium supervenes; and in the most formidable cases death takes place from the inflammation extending to the membranes of the brain."—(Toynbee.) In some rare cases the inflammation attacks the mastoid cells, producing severe and circumscribed pain in that locality, and occasionally terminating in suppuration, and sometimes serious lesion of the brain if the pus is not permitted to escape.

DIAGNOSIS.—Inflammation of the ear presents such marked symptoms that it is not easily mistaken. The severity of the pain, and its location, and attendant constitutional disturbance, are sufficiently characteristic. If the external meatus is

the seat of the disease, it will be found red and swollen, as is the case if the membrana tympani is affected. If confined to the cavity of the tympanum, all the symptoms are more severe and there is an absence of external signs of inflammation. When the inflammation extends to the mastoid cells, the constitutional disturbance is very marked, and when pus forms, the deep throbbing and marked disturbance of the brain shows the character of the lesion.

PROGNOSIS.—Though quite painful, inflammation of the external meatus is not dangerous, nor attended with worse results than otorrhœa in occasional cases. If the tympanum is affected there is some danger of affection of the brain, and considerable of impairment of the hearing. Inflammation of the mastoid cells, if it progresses to suppuration, is always dangerous.

TREATMENT.—Though the inflammation is confined to such a small portion of the body, it demands active treatment. I should in this case use the spirit vapor bath when first called, giving Tincture of *Serpentaria* and *Essl. Tincture of Asclepias*, equal parts, in doses of a teaspoonful every hour or two hours until free perspiration was induced and the pain mitigated. After the bath the patient should be covered warmly in bed, and kept there until the inflammation has subsided. An emetic may be used to produce the same result, but it must be thorough, and followed by a diaphoretic. A brisk, stimulant purgative may occasionally be used with advantage.

Locally we would direct the use of cups over the mastoid process and in front of the ear, or sometimes the application of leeches in the case of an adult. This may be followed by the use of the vapor of water, and hot fomentations of *Stramonium*. Occasionally much relief is obtained from the use of a lotion of equal parts of Tincture of *Aconite* and *Belladonna*, applied around the ear. In some cases, the fever being very intense, we may employ the vapor of Tincture of *Opium*, *Stramonium*, *Lobelia*, *Tobacco*, etc., directly to the external meatus and membrana tympani, by means of a gutta-percha tube. Chloroform and *Æther* may be used in the same way, as may also Carbonic Acid Gas. If the disease seems to extend to the mastoid portion of the bone, I should apply a blister immediately over it, and follow it with the irritating plaster. In some cases, suppuration having undoubtedly taken place, and dangerous symptoms occurring,

it becomes necessary to open into the mastoid cells through the bone, in order to permit the escape of pus.

OTORRHŒA.

Purulent discharges from the ear may be occasioned by chronic inflammation of the external meatus, or disease of the bony canal, or it may proceed from chronic inflammation of the tympanum, or disease of adjacent parts, the membrana tympani having been ruptured or destroyed, so as to permit its escape. In either case there is more or less deafness, uneasiness in the ear, and an offensive discharge. The most frequent causes of otorrhœa are inflammation attending the eruptive fevers, injuries, the direct action of cold, and chronic inflammation resulting from an acute attack. Some families seem to have a predisposition to this affection, the majority of their children having such discharge. In such cases it is almost always associated with scrofula and feeble vitality.

Otorrhœa from disease of the external auditory meatus is the most frequent form of the affection, and might properly be called chronic catarrh. It is of frequent occurrence after scarlet fever and measles, and is often seen in infancy or up to the age of two or three years, becoming more rare as we advance to adult age, except in the cases named. It is true, that the disease commencing at the age of two or three years may continue through life, but this is not very common when the patient has sufficient vitality to reach adult age. Farther than the discharge from the ears of an offensive purulent matter, and some dullness of hearing, there are no prominent symptoms, if we except the almost invariable cachectic appearance of the child. On examining the ear, we will find the bone in a carious condition. When the hearing is much affected, we will find the membrana tympani opaque, and its dermoid layer thick and vascular. In some cases, the discharge is produced by a small polypoid formation in the ear, and in others by a hardened cerumen.

Otorrhœa from disease of the middle ear occurs only when the membrana tympani has been destroyed or ruptured, and may arise from chronic inflammation of the lining membrane, disease of the ossicles, or disease of the bony walls. It is most generally the sequence of acute inflammation, which termina-

ting in suppuration, the membrana tympani gives way, and the inflammation gradually assumes the chronic form. There is always deafness, sometimes but slight, but at others marked. There may or may not be pain or unpleasant sensations in the ear, though usually if there is but a slight opening in the membrana tympani it occasionally becomes closed, and dizziness, ringing in the ear, etc., result from the pressure of the retained secretion.

The condition of the tympanum varies greatly; in some cases there is but slight change of structure, in others, the ossicles become diseased, and are cast off, the mastoid cells and eustachian tube are affected to some extent, and the hearing is nearly entirely destroyed. It may occasionally terminate fatally by an extension of the inflammation to the membranes of the brain.

TREATMENT.—In all cases it becomes necessary to pay attention to the general health, for as long as the child or adult continues cachectic it is almost impossible to arrest the discharge. We would put the patient on a tonic, bracing course of medicine, consisting of the bitter tonics and Iron, associated with a vegetable alterative, as the Compound Syrup of Stillingia, or the Compound Tincture of Corydalis. Especial attention should be paid to the skin, using the daily bath and following with brisk friction; exercise in the open air is also important.

Prominent among local applications in all forms of this affection, except when occasioned by a foreign body lodging in the ear, or a polypoid growth, is counter-irritation over the mastoid process. It should never be neglected, but pursued steadily until the cure is complete. The best agent that I have ever employed is the Cantharides, which may be repeated sufficiently often to keep up a continued influence. In common chronic inflammation of the external meatus, washing the ear out thoroughly with tepid water, and dropping three or four drops of, *R*, Tincture of Muriate of Iron, 3ij; Glycerin, 3j; *M*.; into the ear once or twice daily, will effect a cure in one or two weeks. A weak solution of Nitrate of Silver, Sulphate of Zinc, or Acetate of Lead, from four to ten grains to the ounce of water, may be used in some cases. *R*, Chlorate of Potassa, gr. xx; Glycerin, 3ss; Water, f3j; *M*. also forms a good application. An infusion of Hydrastis, Cornus, Geraniin, Sage, etc., are found useful in

some cases. Occasionally I have employed Oxide of Zinc, gr. x, rubbed up with Glycerin, 3ss, adding a small portion of Morphia, if necessary, to relieve irritation.

If the tympanic cavity is the seat of disease, we will pay especial attention to the general health, and keep up continuous counter-irritation near the ear. Cleanliness is of prime importance, and hence the ear should be thoroughly washed out, once or twice daily. This may be followed by some of the lotions above named, being careful that they are brought in contact with the diseased surface.

If the discharge is produced by accumulations of hardened cerumen acting as a foreign body, this should be softened and removed with a scoop. If from a polypus, and it is not red and vascular, it may frequently be removed by the application of a saturated solution of Tannin, or the careful application of Chloride of Zinc. The best plan, however, in all cases, is to catch it with a strong pair of ring forceps, and detach and remove it.

DEAFNESS.

Partial loss of hearing depends upon various causes, some of which are remediable; total deafness depends upon disease of the internal ear, and if of any considerable duration is incurable. We wish, therefore, in this place, to inquire into the causes of partial deafness, and see how far they are amenable to treatment. We may sum them up, as: 1st, from disease of the external meatus; 2d, from disease of the membrana tympani; 3d, from disease of the tympanum; and, 4th, from disease of the eustachian tube; diseases of the internal ear are beyond our powers of diagnosis, though we are able occasionally to determine with considerable certainty that the deafness is dependent upon partial paralysis—we call this nervous deafness. The ear-speculum should always be used, so as to make an accurate diagnosis.

1. The external meatus suffering from chronic inflammation will give rise to hardness of hearing as we have already seen. In other cases the lining membrane is thickened and dry, and in addition, the ceruminous glands seem to pour out a very inspissated secretion, which desiccating sometimes fills up the bottom of the meatus. In this case we would use injections of tepid water and the scoop, to thoroughly cleanse the ear, and

then use the lotion of Tincture of Muriate of Iron and Glycerin, heretofore mentioned. The lotion of Chlorate of Potassa and Glycerin may also be used in these cases. If there is irritation of the structures, much benefit will be derived from counter-irritation over the ear. Polypi obstructing the meatus should be removed as before mentioned.

2. A condition of chronic inflammation of the membrana tympani, giving rise to a fleshy, vascular appearance when examined with the speculum, is sometimes a cause of deafness; quite frequently it is associated with catarrhal inflammation of the meatus, though it may persist afterwards. An injection of a decoction of Cornus or Hydrastis, and the local application with a camel's hair pencil of the Oxide of Zinc, Morphia and Glycerin, heretofore named, is usually sufficient. Counter-irritation over the mastoid process is also employed. *Relaxation* of the membrana tympani is not of frequent occurrence, but may occasionally be met with as a cause of deafness. It is readily determined by the use of the speculum, the membrane being remarkably concave on its external face, and is diagnosed from the same appearance resulting from closure of the eustachian tube, by its being thrown outward by swallowing with closed nostrils. It is usually removed readily by the use of counter-irritation, the local application of a solution of Nitrate of Silver, four grains to the ounce of water, and an injection of a decoction of Cornus or Hydrastis.

Perforation of the membrana tympani is a frequent cause of deafness, and is readily detected with the speculum. It seems, however, that the deafness depends in part upon thickening of the mucous membrane of the tympanic cavity, for when this is marked the patient can hardly hear at all, while in other cases the deafness is but slight. We should therefore endeavor to remove all irritation by the use of counter-irritants and appropriate local applications, and we will then have placed the patient in the best condition for the use of the artificial membrana tympani; this is formed out of vulcanized rubber, and has been very successfully employed.

3. Various changes in the tympanic cavity, resulting from inflammation, may be the cause of deafness, but there is only one, so far as we know, that can be reached by remedial measures. We have already noticed that a chronic inflammation of these structures might continue for years, attended with secretion; and examination shows us in some cases, a thick-

ening of the lining membrane, with increased vascularity. In these cases, the persistent use of counter-irritation and the local means heretofore named will do much towards a relief of the deafness.

4. Obstruction of the eustachian tube always gives rise to partial deafness, though, as the causes are usually temporary, the deafness is not of long duration. Dr. Toynbee notices three points of obstruction: 1, at its *faucial orifice*, a thickening or relaxation of the mucous membrane; 2, at its *tympanic orifice*, from thickening of the mucous membrane, or a deposit of fibrin; 3, in the *middle part* of the tube, from a collection of mucus, a stricture of the osseous or cartilaginous portions, or membranous bands connecting the walls. If the eustachian tube is impervious, we will find the *membrana tympani* sunken in, of a dull, leaden hue, and its surface unnaturally glossy, and swallowing with the nose closed or forcible expiration will not have any effect on it.

If the patient has had disease of the tonsils, fauces, or posterior nares, we may reasonably suppose that the disease has been caused by this, and is at the faucial extremity of the tube. The inflammation sometimes extends to the mucous membrane lining the tube, and its tumefaction causes the disease. In other cases the swelling of the mucous membrane at the termination of the tube is the cause of it, and in another class it results from relaxation. In these cases, appropriate measures to relieve inflammatory engorgement in the one instance, and to remove the atony and relaxation in the other, should be adopted. The orifice of the eustachian tube may be reached through the mouth or inferior meatus of the nose, and local applications may be made with a probang or syringe. In some cases it is proposed to remove obstructions by means of a catheter passed into the eustachian tube, but no permanent benefit results from it. We may, however introduce a catheter for the purpose of using an injection into the tube, using the same remedies that would be indicated in other situations, as, for instance, those recommended in otorrhœa.

Nervous Deafness.—Toynbee remarks that "As some cases of deafness dependent upon the derangement of the nervous apparatus connected with the organs of hearing appear to be caused by the condition of the brain generally, or of that part in intimate relation with the acoustic nerve, it has seemed desirable to divide the nervous diseases of the ear into two

classes; to the first of which belong those cases where the special nervous apparatus of the organ is alone affected; to the second, those where the brain conjointly with the ear, seems to be injured. The first class may be divided into diseases arising from: 1, concussion; 2, the application of cold; 3, various poisons, as that of typhus, scarlet, or rheumatic fevers, of measles and mumps, of gout, of an accumulation of bile in the blood, and of quinia in large doses. And the second into diseases arising from: 1, excess of mental excitement; 2, physical debility.

In the first class of cases there is not unfrequently ringing and singing in the ears, with other morbid sounds, and sometimes a feeling of giddiness and unsteadiness extremely unpleasant. From its commencement there is frequently a continuous increase in the deafness; but in other cases it remains the same, and in still others there is gradual improvement. It is generally conceded that in very many cases there is congestion of the nervous apparatus of the internal ear, though if it continues for a considerable time it will very likely terminate in structural change. The treatment in these cases consists in the administration of alteratives, keeping the bowels open, and the secretion of the kidneys free, by the administration of the saline diuretics, and normal action of the skin by the daily use of the bath with friction. Persistent counter-irritation over the mastoid portion of the temporal bone, with Cantharides or the irritating plaster, is one of the most important parts of the treatment. These measures, followed up for months, will occasionally produce the most marked benefit, the hearing being sometimes completely restored; but in other cases no benefit results.

In the second class of cases we will have more or less evidence of cerebral disturbance, though frequently the symptoms are imperfectly marked. No treatment can be laid down for these cases, as the symptoms are so variable and changing. They should be treated on general principles, and we will sometimes be agreeably surprised at a favorable termination in cases which had seemed hopeless; and not unfrequently we will fail when we seemed to have the best chance of success.

CHAPTER IX.

DISEASES OF THE SKIN.

There is no class of diseases that is less understood by the general practitioner, than affections of the skin, and yet there is no reason why this should be so, as they are of frequent occurrence, and being situate where they may be accurately examined by sight and touch, they are readily recognized. The causes of diseases of the skin are various; some are propagated by contagion, others arise from want of cleanliness or mechanical irritation of the skin, and a third class depend upon disease of the blood, or arrest of secretion. To obtain an accurate knowledge of these affections, it is necessary to group them together as they correspond in general symptoms and appearances, and study them in classes. The classification of Bielt is perhaps the best for the student:

<i>Order I.</i>	EXANTHEMATA,		Mentagra,
	Erythema,		Porrigo.
	Erysipelas,	<i>Order V.</i>	PAPULÆ,
	Roseola,		Lichen,
	Rubeola,		Prurigo.
	Scarlatina,	<i>Order VI.</i>	SQUAMÆ.
	Urticaria.		Lepra,
<i>Order II.</i>	VESICULÆ.		Psoriasis,
	Miliaria,		Pityriasis,
	Varicella,		Ichthyosis.
	Eczema,	<i>Order VII.</i>	TUBERCULÆ.
	Herpes,		Elephantiasis,
	Scabies.		Molluscæ,
<i>Order III.</i>	BULLÆ.		Framboesia.
	Pemphigus,	<i>Order VIII.</i>	MACULÆ.
	Rupia.		Colorationes,
<i>Order IV.</i>	PUSTULÆ.		Fuscedo Cutis,
	Variola,		Ephelides,
	Vaccinia,		Nævi,
	Ecthyma,		Decolorationes,
	Impetigo,		Albinismus,
	Acne,		Vitiligo.

Each of these orders have certain grand characteristics by which they are recognized, and each division will have these markedly defined, forming its most prominent symptoms; those peculiar to the affection being sometimes well marked, and at others rather obscure. Cazenave describes the important symptoms of each class, as follows:

Exanthemata.—This term is applied to patches of a reddish color, varying in intensity, size, and form, disappearing under pressure of the finger, and terminating in delitescence, resolution or desquamation.

Vesiculæ.—A vesicle is a slight elevation of the epidermis, containing a serous and transparent fluid, which, however, is occasionally opaque or sero-purulent. The vesicle may terminate in absorption of the fluid, slight desquamation, excoriation, or the formation of small thin incrustations.

Bullæ.—Generally speaking bullæ differ from vesiculæ merely in size; they are small superficial tumors, caused by effusion of serum underneath the epidermis.

Pustulæ.—This term should be strictly confined to circumscribed collections of pus on the surface of the inflamed mucous layer. The contents of the pustules in drying produce scales, and they may be followed by chronic induration, or by red inflamed surfaces, or sometimes by slight excoriation.

Papulæ.—These are small elevations, which are solid, resisting, and never contain any trace of fluid; they may likewise give rise to ulceration, but generally terminate in resolution and furfuraceous desquamation.

Squamæ.—The term squamæ is applied to the scales of thickened, dry, whitish, friable and degenerated epidermis, which cover minute papular elevations of the skin; they are easily detached, and may be reproduced for an indefinite length of time by successive desquamations.

Tuberculæ.—These are small hard tumors more or less prominent, circumscribed in form, and persistent; they may become ulcerated at the summit, or suppurate partially. In this definition we consider tubercles as elementary lesions, and not those which appear after abscesses.

Maculæ.—Are permanent changes in color, in certain points of the skin, or of the whole cutaneous envelope, but unattended with any general derangement of the health.

ORDER I.—EXANTHEMATA.

The general characteristics of this order are well marked at first, though in the progress of the disease they may so change that they will approximate some of the others. They always commence with redness of the skin, which is effaced for the moment by pressure, returning as soon as this is removed. Some of them, as erysipelas, rubeola and scarlatina, are attended with marked constitutional disturbance, and in the last two as we have already seen, the cutaneous disease is associated with disease of the throat and respiratory apparatus, and in all three of the diseases named there is in some cases marked lesion of the blood.

ERYTHEMA.

Erythema is one of the mildest of the exanthemata, and usually is not accompanied with febrile action, though in the severer cases there is arrest of secretion and some constitutional disturbance. It may be associated with other diseases, and is thus with intermittent and remittent fever, gastric irritation, and diarrhœa. It may be produced from mechanical irritation of the skin, but the most frequent causes are cold and arrest of cutaneous secretion, or gastric, intestinal, or menstrual derangements.

SYMPTOMS.—The disease appears in the form of patches of variable size, of a light, superficial red color, readily effaced by pressure, and most frequently on the face, chest and limbs. In some cases they spread so as to cover a considerable portion of the body, but this is not frequent. One form, termed *erythema nodosum*, is preceded by slight constitutional disturbance, and comes out in oval, red patches, from half an inch to an inch in diameter, most generally on the lower extremities. When more fully developed they are slightly elevated above the adjacent skin, and in a few days form small, red, painful tumors, which seem inclined to suppurate, and in severer cases give a suspicious sense of fluctuation, but at last disappear without any change of structure. The first form may last but a few hours, or in rare cases it may continue two or three weeks; the second usually continues for from three to six days.

TREATMENT.—But little treatment is needed in the simple form of the disease. The bowels may be opened by equal

parts of Compound Powder of Rhubarb, and Compound Powder of Jalap, or with the first alone; or if there is no occasion for this, we may give, *R*, Syrup of Rhubarb and Potassa, *f3jss*; Essl. Tincture of Asclepias, *f3ss*; *M.*, and to a child two or three years old we may give half a teaspoonful every hour or two, or to an adult, one or two teaspoonsful frequently. The surface should be bathed with a weak solution of Carbonate of Potassa, and in some cases we would use the warm foot bath. In the second form of the disease, I have usually prescribed a gentle laxative, with a solution of Acetate of Potassa, and very small doses of Aconite. The use of the alkaline bath gives great relief, and it may sometimes be repeated several times a day. In some rare cases there seems to be a tendency to excoriation, and in such case I would advise a lotion of, *R*, Glycerin, *f3j*; Chlorate of Potassa, *gr. xx*; Aqua Rosæ, *f3ij*; *M.*

ERYSIPELAS.

Erysipelas is undoubtedly a disease of the blood, and should be classed with the eruptive fevers, though not contagions, except in exceptional cases. It may occur at any age, though it is more frequent in adults than in children. The causes of erysipelas are obscure, though it is probably occasioned by cold, arrest of secretion, etc., as in other forms of fever. It occurs most frequently in the spring and autumn, and in persons of a fine delicate skin. Occasionally it becomes epidemic in a neighborhood or section of country, and in other cases highly contagious, as in large hospitals. I have known surgeons that had to suspend all operations, even the most simple, on this account, for weeks, as almost every case operated on would have erysipelas. We distinguish these forms of this disease, *E. verum*, *E. phlegmonodes*, *E. gangrenosum*.

SYMPTOMS.—1. *Erysipelas Verum.*—Frequently the disease is preceded, or in other cases shortly followed, by a well-marked chill, to which succeeds febrile action. In some cases the fever is slight, but in others it is as intense as in the continued fevers. With the commencement of the chill a circumscribed redness of some portion of the skin comes up, and in a few hours becomes slightly swollen, hot and painful. The redness is generally deep, but is effaced by pressure, though from the exquisite tenderness of the part, the patient will rarely permit it. As the disease continues, it usually extends

slowly to adjacent parts, the advance of the inflammation being marked by slight swelling, pain and tenderness on pressure. In this way, commencing as a small spot on the face, it sometimes extends until it involves the entire face and scalp.

Frequently in the course of two or three days the epidermis is loosened and distended with a yellowish serum, forming bullæ of larger or smaller size, and these rupturing pour out their secretion, and sometimes become covered with thin incrustations. The redness usually fades, and the inflammation commences to disappear by the fifth or sixth day, leaving the epidermis wrinkled and yellowish, and at last it desquamates over the entire surface. This form of erysipelas may appear upon any part of the body, but is far more frequent upon the face and extremities. The fever is in some degree dependent on the extent of the eruption, though in severe cases where this is comparatively slight it will be very severe and of a low asthenic form; delirium sometimes occurs where the face and scalp are affected.

2. *Erysipelas Phlegmonodes*.—This variety affects not only the skin, but the cellular tissue, and in some cases, the entire structure of a part, and is proportionably more severe. It results more frequently from injuries, as bruises or punctured wounds, but may be idiopathic; it occurs most frequently in the extremities. In many cases the disease is ushered in with a chill, to which succeeds febrile action. Occasionally the fever is very intense, the tongue becoming dark coated, the pulse hard, small, and frequent, the bowels irregular, urine scanty, high-colored and fœtid, with low muttering delirium. The local disease comes up as in the other case, with heat, pain and redness, but it is soon observed that the swelling is much more marked. When the disease is fully developed the pain is intense, and the patient can not bear the slightest pressure on the part, which seems to be swollen to its fullest extent. In the course of from three to five days, the redness and heat subside, and the part gives a doughy sensation to the touch, and is if anything more swollen and painful. Small purulent deposits are now noticed, which upon being opened, at first discharge a healthy pus mingled with flakes of broken down cellular tissue, and afterwards in some cases, a reddish flocculent material. When the disease has been severe, a

large portion of the cellular tissue will have lost its vitality, and will be discharged in this manner, recovery being slow.

3. *Erysipelas Gangrenosum*.—This form usually occurs in persons of broken down constitutions, or where the health has been impaired by previous disease. It may come up as in the preceding case with severe constitutional and local symptoms, but more frequently these are mild. The swelling is usually very marked, and in a short time the surface is observed to become of a dusky-red, or almost black color, phlyctenæ appear, and the inflammation soon terminates in gangrene. With the appearance of these symptoms, the fever frequently assumes a low typhoid form, with muttering delirium, dark-brown tongue, diarrhœa, etc., and if the disease is extensive, soon terminates fatally.

DIAGNOSIS.—The symptoms of erysipelas are so well marked that it can not well be mistaken for any other disease. The deep, circumscribed redness, burning pain, swelling and heat, and the severe constitutional disturbance, are its distinguishing features. *Erysipelas of the face*, its most common situation, will commence in a spot not larger than a dollar, and will gradually spread until it involves a large portion of the integument, the swelling being so great as to almost entirely obscure the features. On the extremities it may be limited and the symptoms mild, but frequently commencing on a limb it will extend up or down, until a considerable portion is involved, the tumefaction being so great as to entirely change the appearance of the limb.

PROGNOSIS.—Erysipelas will terminate favorably in a large majority of cases, if properly treated. It becomes dangerous where a large portion of the integument is involved, with severe constitutional disturbance; where the tongue becomes dark, with diarrhœa, and great prostration; where inflammation of the brain occurs during erysipelas of the scalp; and in severe cases of phlegmonous, and in the gangrenous form of the disease.

TREATMENT.—We would immediately put a patient on the use of the special sedatives, Tinctures of Aconite and Veratrum, in the doses heretofore recommended, associating with them, as soon as the pulse was to some extent reduced, R, Essl. Tincture of Asclepias, f3j; Carbonate of Ammonia, 3ss; Aqua, 3ij; M., and administer in doses of a teaspoonful every two hours. If there is nausea, or evidence of accumulations

in the stomach, a thorough emetic should be given. A gentle cathartic, as the Compound Powder of Jalap and Senna, or the Podophyllin Pill, may be given to keep the bowels open, though brisk purgation is to be avoided. By the second or third day, the fever being controlled by these means, we would give Quinia, associated with Hydrastin or Prussiate of Iron, in the usual doses. In addition to this, we would commence at first the administration of the Tincture of Muriate of Iron, giving it in doses of from ten to forty drops largely diluted with water, every two or three hours, and continuing it until the disease had disappeared. If there is a specific in medicine, this remedy is one in erysipelas, and we might safely rely upon it in many cases without other means.

As regards local applications, we generally apply the Tincture of Muriate of Iron, either pure or combined with an equal part of Glycerin. It should be used with a camel's hair pencil, or brush made of soft cotton cloth, painting the entire part, and for a considerable distance outside the redness; if any part should be vesicated, it should not be touched with the remedy. Applying it this way every three or four hours, we would in the meantime keep the part covered with a cloth wet with R, Tincture of Muriate of Iron, f3j; Glycerin, 3iij; M., or a cloth wet with sweet or Linseed oil, or fresh Lard. Some practitioners employ a strong solution of Nitrate of Silver, forty or sixty grains to the ounce of water, and some cauterize the sound skin entirely around the inflamed part with the stick Nitrate of Silver; though it answers a good purpose in some cases, I do not like the treatment as well as the preceding.

Occasionally we find a case in which the patient can not bear the slightest irritant, and the measures just named seem to increase the disease. Here we may use the Glycerin alone, or fresh Lard, or equal parts of Lime water and Linseed oil. In some very obstinate cases I have used a decoction of the inner bark of the common Elder, boiled in buttermilk, and a poultice of a strong decoction of Cornus with Wheat bran.

In phlegmonous erysipelas we may employ the means above named until evidence of suppuration presents itself, when the part should be immediately opened. In some cases the first appearance of suppuration manifested by throbbing, or extreme and unnatural swelling and tension of the part, calls for free incisions. We may anticipate the suppurative pro-

cess, but we give relief and mitigate the severe constitutional disturbance, and sometimes thus save the life of the patient, or the use of the limb. There can be no doubt but that the only successful plan of treatment in some cases of gangrenous erysipelas is the free use of the knife, followed by the topical application of a solution of Sulphate of Zinc. Suppuration having been established, it has been my practice to syringe the openings with a solution of Sulphate of Zinc, ten to thirty grains to the ounce of water, and use equal parts of Tinctures of Arnica, Stramonium, and water as a dressing. If the fever should assume a typhoid character during the disease, we would treat it in a similar manner to typhoid fever. As an antiseptic and diaphoretic combination I have used, R, Chlorate of Potassa, ʒij; Hydrochlorate of Ammonia, ʒj; Tincture of Asclepias, fʒss; Aqua, fʒijss; M., and give in teaspoonful doses every two hours. An infusion of Baptisia, or of this and Bayberry, sometimes answers a good purpose; Quinia and Hydrastin should be used in moderate doses, and stimulants given to sufficient extent to keep up the strength of the patient. It must not be forgotten that the patient needs food, and as much of animal broths or of milk should be given as the stomach can appropriate. If at any time nausea and vomiting sets in, so that the patient can not take the necessary medicine and food, we will have to administer an emetic, unless in those exceptional cases, in which there is inflammation of the stomach, when the soothing measures heretofore named should be employed.

ROSEOLA.

Roseola, or *rose-rash*, is a mild exanthematous eruption continuing from one to six or seven days, and attended by more or less febrile action. The causes are obscure, though arrest of secretion and gastro-intestinal irritation, are the most frequent. It sometimes occurs as an epidemic, especially in warm seasons, and sporadically, from over-heating the body, severe exercise, etc. Four varieties have been distinguished. R. infantilis, R. æstiva, R. autumnalis, and R. annulata.

SYMPTOMS.—*Roseola infantilis*, as its name indicates, is usually met with in young children, and arises from gastro-intestinal irritation, or from dentition. It comes out in the form of deep rosy-red patches about one fourth of an inch in diameter, and circular in form. When severe, they are very

much crowded together so as to give a general red appearance to the surface, but yet each one is well defined. They may continue for several days, or vanish and reappear for several days. Usually the fever is but slight, but the child shows symptoms of irritation, being cross and fretful.

Roseola æstiva is usually ushered in by marked febrile action, and in children delirium or convulsions sometimes supervene. The eruption usually appears about the third or fourth day on the face and neck, and in a few hours involves the greater part of the body. "The spots are of a deep red color, more irregular in shape than those of measles, and their original color soon passes into a light rosy hue. There is also present a considerable degree of itching and pain, and often difficulty in swallowing." The disease runs a very variable course, but the eruption usually disappears in three or four days without desquamation.

Roseola annulata, comes out in the form of rose-red rings, in the center of which the skin retains its natural color; it is said to be principally observed on the abdomen and buttocks. It is not usually accompanied with much fever, but is occasionally very persistent, and is usually associated with gastrointestinal irritation.

DIAGNOSIS.—Roseola may be distinguished from measles by the spots being larger, circular, circumscribed, and of a deep rose color, whilst the patches of measles are small, irregular, and of a bright red color. The eruption of scarlet fever, consists of a great number of small red points of a scarlet or raspberry color, and grouped together so as to form irregular patches.

TREATMENT.—But little treatment is necessary in many cases of this disease, as it passes through its various stages, with but slight disturbance. Usually we prescribe for a child, *R*, Compound Syrup of Rhubarb, $\text{f}\text{3jss}$; Essl. Tincture of Asclepias, $\text{f}\text{3ss}$; *M.*, and give in teaspoonful doses every hour until it moves the bowels. Occasionally the stomach is very much out of order, when we give a mild emetic. In the severer cases, I would administer the special sedatives to arrest the fever, with Tincture of Gelsemium to quiet nervous irritation, and direct the alkaline bath to be used once or twice daily.

URTICARIA.

Urticaria or *nettle-rash* occurs most frequently in childhood, though we occasionally see cases of it in the adult. The most common cause is doubtless gastro-intestinal irritation, though the milder forms may be caused by sudden changes of temperature, or excessive mental emotion. Sometimes it is an acute affection, but more frequently it assumes a chronic form, and may last for months or years, reappearing on the slightest imprudence of diet or change of habits.

SYMPTOMS.—Though divided into several varieties, it will suit our purpose to consider it as *febrile* and *non-febrile*. In the first case the eruption is preceded for a day or two by slight febrile symptoms, irritation of the stomach, and pain at the epigastrium. The eruption then comes out in the form of red or pale red blotches, irregular in shape, elevated above the adjacent skin, hard around their edges, and surrounded by a bright red or scarlet border. An intolerable pruritus and burning accompanies the eruption, aggravated by warmth, and usually by scratching or rubbing the part, and is sometimes so severe as to prevent the patient's sleeping. The eruption is not constant, but goes away and reappears sometimes every few hours. The disease usually continues for seven or eight days, with some constitutional disturbance during the entire period, and at last disappears, leaving but slight itching; in severe cases there may be some desquamation.

The non-febrile form is usually chronic, and has been divided into two varieties, *U. evanida* and *U. tuberosa*. In the first; the eruption appears at irregular intervals, sometimes for months or years, is not attended by febrile action, and has not the red border just noticed; the spots look more like those produced by whipping, and are only accompanied by itching.

The last form is very rare, and instead of the slightly elevated blotches, there are broad, hard, deep-seated and painful tuberosities which impede motion. It passes off and reappears like the preceding variety, but almost always leaves the patient fatigued and depressed.

DIAGNOSIS.—There is but one disease (*lichen urticatus*) with which this can be mistaken, and from that it may be distinguished by the large irregular blotches, while in lichen, the

papulæ are rounder, less prominent, smaller, harder, and of a deeper color. Urticaria may be complicated, however, with erythema, roseola, impetigo and lichen.

TREATMENT.—In the febrile form of this disease, if there is marked derangement of the stomach, relief will be most quickly obtained by the administration of an emetic, followed by a gentle purgative. Acidulated drinks, with small doses of the special sedatives, may then be given, and the surface should be frequently bathed with a solution of Carbonate of Potassa, or in some cases, water acidulated with Sulphuric Acid. In the chronic form of the disease, especial attention must be paid to the condition of the stomach and bowels, and to the diet. In children, the occasional use of the Syrup of Rhubarb and Potassa, with Essl. Tincture of Asclepias, will prove useful. In the adult, we will obtain more benefit, in persistent cases, from the use of the Compound Tincture of Corydalis, with a solution of Acetate of Potassa. In very stubborn cases we may give a solution of Bromide or Iodide of Ammonium, with a decoction of equal parts of Alnus and Rumex.

Rubeola and scarlatina have been heretofore described under the head of eruptive fevers, and need no notice here.

ORDER II.—VESICULÆ.

The distinguishing characteristic of this order is, the formation of small vesicles by an elevation of the epidermis, which are filled with a serous fluid. This fluid at first transparent, in severe cases becomes yellowish and opaque, and is finally either absorbed, or dries and forms scales or incrustations. The vesicle is always round, and may or may not stand upon an inflamed base. One variety of this order, *varicella*, has already been described with the eruptive fevers.

MILARIA.

Malaria, or *sudamina* most generally appears as an attendant upon other diseases, more especially typhoid, and the advanced stages of other fevers and inflammations. There are exceptional cases “in which it assumes an idiopathic form, as for example, when it appears in healthy subjects after violent exercise in warm weather; in these instances it is gen-

erally accompanied with copious perspiration. The eruption is then attended with a disagreeable sensation of heat and itching. The number of vesicles is sometimes very considerable, but they are ephemeral, and disappear in the course of twenty-four hours."—(Cazenave.) The miliary vesicle is small, not larger than a pin's head, and the contents being clear and transparent, it can not be seen well unless we look across the surface. They are usually grouped together in patches, upon the thorax and neck, and in rare cases become confluent, forming bullæ. They demand no treatment, being simply symptomatic of other diseases.

ECZEMA.

Eczema, *humid tetter*, or *running scall*, is characterized by an eruption of small vesicles grouped and crowded together, and forming more or less well defined patches. It may be divided into the *acute* and *chronic* form, and these have to be still further divided into several varieties. The causes of eczema are very obscure, and it is non-contagious, except in rare cases when the disease affects the genital organs.

SYMPTOMS.—*Eczema simplex* commences with a sensation of itching, which is soon followed by the appearance of numerous small transparent vesicles, flattened, and set close together; after a time the fluid they contain becomes opaque, and they finally rupture, forming a small thin scab which is soon detached. They appear more frequently upon the fore-arm, and where the skin is thin and delicate, and frequently between the fingers, somewhat resembling the itch.

Eczema rubrum is accompanied with considerable heat and tension of the skin, and at first the vesicles may be observed as small solid points, but they soon become true vesicles, which attain the size of a pin's head, and finally disappear about the sixth or eighth day. In some cases the vesicles coalesce and rupture, a disagreeable excoriation producing repeated incrustations being left.

In *eczema impetiginodes* the inflammation of the skin is very marked and it is swollen, the vesicles are larger, and the contained fluid loses its transparency and becomes purulent, and finally they rupture, forming a scab, which is thrown off and re-formed sometimes for two or three weeks. Acute eczema of the two last forms is usually attended with well marked febrile action, which continues for two or three days, and

sometimes for a longer period. The eruption is always accompanied by itching, which is sometimes very severe and troublesome.

Chronic eczema most generally results from an acute attack, and may continue for months, or even years. In these cases the skin becomes deeply inflamed and excoriated, and fissures form about the joints; a continued ichorous discharge is kept up which increases the irritation, and forms thin crusts, or coming in contact with the clothing agglutinates it to the part, and when removed there is much pain and smarting, and sometimes a considerable flow of blood. When the crusts are detached, the surface is found reddened, soft and swollen. In other cases there is less exudation, the skin being dry, inflamed and fissured, and covered by slight crusts. "Chronic eczema is invariably attended with intense itching, more distressing than the severest pain. The patient in vain struggles against it, but he can not, however, resist the urgent desire to scratch himself, and thus increases his suffering. After a certain period, the itching begins to subside, the serous exudation gradually ceases, the scaly incrustations dry up, and the skin is less inflamed. Finally the disease becomes reduced to a small, dry, red surface, which is covered with extremely thin, laminated crusts. The surrounding skin is smooth, tense and firm, and only slowly resumes its natural state."—(Cazenave.)

DIAGNOSIS.—It may be distinguished from itch by the flatness of the vesicles, their being grouped together, whilst in itch they are pointed and isolated. The diagnosis of chronic eczema from lichen is sometimes difficult, but usually the presence of papule near the red inflamed surface is sufficient.

TREATMENT.—In acute eczema we would administer a laxative, and give the patient a solution of Citrate or Acetate of Potassa, with lemonade. If there is much febrile action, we would associate with it small doses of the special sedatives. The alkaline bath, frequently repeated, is the only external application that is necessary. In the severer forms we may use a lotion of ℞, Chlorate of Potassa, ʒij; Morphia, gr. ij; Glycerin, ʒij; Aqua Rosæ, ʒiv; M., and apply three or four times a day.

In chronic eczema, we will give the patient a vegetable alterative, as the Compound Tincture of Corydalis, or an infusion of equal parts of Alnus, Rumex, and Jeffersonia,

associated with the simple bitter tonics if they should be deemed necessary. In addition to this, a solution of Acetate of Potassa in the usual doses, or Liquor Potassa in doses of from ten to forty drops should be given. The alkalis, and the vegetable remedies above named seem to exert a marked influence on the disease. The bowels should be kept open by gentle laxatives, though purgation should be avoided. As a local application we may use the Glycerin lotion above named, or we may employ an infusion of *Alnus* and *Rumex*, followed by Glycerin, or what is better than either, an ointment of the inner bark of the common Elder. In some cases a general bath, rendered emollient by the addition of Mucilage or Gelatin, will be beneficial; it should be about 90° Fahrenheit, and continued for an hour or longer. In place of this we may use the vapor bath, repeating it two or three times weekly.

HERPES.

Herpes is most generally an acute disease, and is characterized by an eruption of vesicles grouped together on an inflamed base. The causes are unknown. Five varieties are distinguished: *H. phlyctenodes*, *H. labialis*, *H. præputialis*, *H. zoster*, and *H. circinatus*.

SYMPTOMS.—*Herpes phlyctenoides* is usually attended by slight indisposition, loss of appetite and constipation. The patient feels a smarting, burning sensation of some part, and upon examination finds a number of slightly red spots, upon which in a short time is developed six or eight firm and prominent vesicles from the size of a millet seed to that of a small pea. At first they are transparent, but in the course of a day become opaque and milky; there is frequently a sensation of itching, and sometimes the part feels quite painful. They commence to decline about the fourth or fifth day, drying up and leaving larger or smaller incrustations, and by the eighth or tenth day they have entirely disappeared, nothing but the redness of the surface remaining.

Herpes labialis is usually preceded by slight indisposition and fever, and hence the vesicles are often termed *fever blisters*. It usually comes out at the junction of the skin and mucous membrane, but may appear in the mouth, or as far back as the pharynx. It is usually preceded for a few hours by redness, and sometimes the part is swollen and painful. The vesicles are of various sizes, the largest about the size of a small pea;

at first they are transparent, but in two or three days become opaque and yellow, and in two or three days more desiccate, forming brownish crusts.

Herpes præputialis appears on the external surface of the prepuce, small inflamed spots being first noticed, which in the course of a few hours are covered with groups of small globose vesicles. It runs a similar course to that just noticed, but in some cases continues to reappear for years, causing great annoyance to the patient.

Herpes zoster or *shingles* is usually the severest form of the disease, being attended in many cases with marked febrile action. It usually makes its appearance on the trunk in irregular patches of a red color, which are soon covered with vesicles; new patches coming up, the disease may pass entirely round the body, though Cazenave states that it never appears but upon one side at a time. The vesicles resemble those already described, but are sometimes larger; they usually disappear in four or five days, leaving at some points thin, brown incrustations which are soon detached. The disease usually lasts for ten or fourteen days, and sometimes longer.

Herpes circinatus or *ringworm* appears most frequently upon the face, neck and arms, though it may come out on any portion of the body. It comes out at first as a red spot about the size of a dime, on which shortly appear numerous small vesicles arranged in rings, hence the common name of ringworm; it is not attended with constitutional disturbance, and generally disappears in ten or twelve days.

DIAGNOSIS.—The diagnosis of herpes is generally easy, the vesicles being round, prominent, and grouped together on one inflamed or red base; the symptoms of the different forms are usually sufficiently marked for their easy distinction, as above described.

TREATMENT.—But little if any treatment is necessary in many of these cases. If there is febrile action, as in *H. phlyctenodes* and *H. zoster*, we would direct the use of the alkaline bath, the hot foot bath, and prescribe small doses of the special sedatives, with a solution of Acetate of Potassa. If there is much irritation of the part, a lotion of Glycerin and Chlorate of Potassa, as heretofore recommended, will be useful. *Herpes præputialis* is sometimes a very stubborn disease: we prescribe for it a lotion of Borax and Morphia, the Glycerin lotion, equal parts of Glycerin and Muriated Tinc-

ture of Iron, or a decoction of equal parts of Cornus, Alnus and Rumex. Herpes circinatus may sometimes be arrested by painting the part with Tincture of Muriate of Iron or Tincture of Iodine; but usually the Glycerin lotion will be sufficient.

SCABIES.

Scabies or itch, though a vesicular disease, is produced by an animal parasite—the *acarus scabiei*—and hence, as this insect possesses a very tenacious vitality, the disease is rendered contagious by its transmission from one to another. The *acarus* is usually found a short distance from the vesicle in a small furrow leading from it. With good sight or a magnifying glass it can be seen as a small, round, grayish body, sometimes moving, sometimes at rest. Under the microscope, its body is seen to be oval, the back convex and marked with curved lines, its head covered with fine hairs, and eight legs passing from its abdomen. The insect passes from one part to another, by burrowing under the epidermis, but is only conveyed to distant parts by the fingers, after scratching, and by the clothing.

SYMPTOMS.—Scabies almost always makes its first appearance between the fingers and front part of the wrist, in the form of small pointed vesicles, containing a clear, limpid fluid, and a very fine line leading from it, and marking the situation of the *acarus*. An intense but pleasurable sensation of itching attends their appearance, and the patient can not resist the inclination to scratch or rub the part, though this sometimes gives rise to a sensation of smarting if too severe. As the disease progresses, the irritation of the skin by the nails usually produces suppuration in the vesicles, the result being the formation of larger or smaller scabs, and some inflammation and stiffness of the skin. In severer cases we occasionally see in the interspace between the fingers a large festering surface covered with thick scabs, and the hands so stiff and painful that they can hardly be used. Sometimes the itch is confined to the hands, but in others it is conveyed to the flexures of the joints, to the perineum around the anus, and in fact wherever the skin is thin and delicate. In all these situations we may have the suppurative action above named, so that occasionally instead of a mild vesicular disease, the patient will be covered with foul, painful, ulcerating sores.

Itch never terminates spontaneously, but may last for years.

In some cases it never passes the vesicular form first named, but in a majority, especially where cleanliness is neglected, it goes on to the formation of hard scales, and induration of the skin.

DIAGNOSIS.—The diagnosis of itch is generally not difficult, as the vesicles are pointed and solitary, while in eczema they are flattened, and in prurigo the eruption is first papular, as it is also in lichen, and in neither case does it appear between the fingers, the frequent seat of scabies. The sulcus passing from the vesicle in itch is a good diagnostic feature, though not usually very well marked. In the severer stages of the disease, there would be difficulty in the diagnosis were it not for the constant reappearance of the disease in its original form.

TREATMENT.—The object of treatment is to destroy the itch insect, and whatever will accomplish this with the greatest certainty, and in the least time, will prove the best remedy. Sulphur has formed the basis of most applications, and is I believe the best remedy. We may use it in the form of ointment mixed with Lard, or with an Alkali, as, \mathcal{R} , Sulphur Sub. $\mathfrak{3ij}$; Sub-carbonate of Potash, $\mathfrak{3j}$; Lard, $\mathfrak{3vij}$; \mathcal{M} .; or, \mathcal{R} , Prepared Chalk, $\mathfrak{3iv}$; Sulphur, Tar, $\mathfrak{āā}$, $\mathfrak{3vj}$; Soft Soap, Lard, $\mathfrak{āā}$, $\mathfrak{3xvj}$; \mathcal{M} . These ointments should be thoroughly applied to the parts affected, after they have been well cleansed with soap and water. I have used a combination of, \mathcal{R} , Sulphuret of Potassium, $\mathfrak{3ss}$; Oils of Rosemary and Lavender, $\mathfrak{āā}$, $\mathfrak{3j}$; Lard, $\mathfrak{3vj}$; \mathcal{M} .; and apply as before. Cazenave states that after repeated trials they determined that the two following formula yielded the most satisfactory results, \mathcal{R} , Essence of Peppermint, Rosemary, Lavender and Lemon, $\mathfrak{āā}$, gtt. iv to gtt. vj; Alcohol, $\mathfrak{3jss}$; weak infusion of Thyme, \mathcal{Ovj} ; it was freely used, and the cure resulted in eight days. \mathcal{R} , Iodide of Sulphur, Iodide of Potassium, $\mathfrak{āā}$, $\mathfrak{3jss}$; Water, \mathcal{Oij} ; the mean duration being six days. They say, whatever the lotion employed, it is necessary not only to wet the affected parts, but to prolong its application, so as to produce that kind of maceration which is required to destroy the insect. A solution of Sulphuret of Lime, $\mathfrak{3ij}$ to the pint of Water is very efficient, the cure being effected sometimes with three or four applications.

In the milder forms of the disease no internal treatment is necessary, but the patient should be guarded against cold, dampness, and sudden changes of temperature, and have his

entire under clothing changed every day. In the more persistent cases, we may give equal parts of Sulphur and Cream of Tartar, to the extent of keeping the bowels open, and in some cases where the patient is cachectic, the bitter tonics and Iron. I have cured the itch with a local application of the Phytolacca, and Podophyllum, but I prefer the remedies first named.

ORDER III.—BULLÆ.

This order, it will be recollected, is characterized by the formation of large *blebs* or blisters, from the size of a pea to a hen's egg, sometimes with and sometimes without redness of the skin. Properly speaking, there is but one variety, *pemphigus*, but some authors class *rupia* under this order. Both affections are usually chronic, and may appear in succession, on any part of the body. We have no knowledge of their causes further than they are usually associated with a cachectic condition of the system.

PEMPHIGUS.

Pemphigus is almost always associated with general debility and imperfect performance of the various functions of digestion, assimilation and secretion, though the person may seem to enjoy tolerably good health. It makes its appearance in the form of blebs or blisters, from the size of a split pea, to an inch or more in diameter, containing a thin transparent serum. They frequently increase in size for two or three days, the fluid becoming straw-colored, when they are ruptured, and a thin brownish crust forms. Sometimes the surface heals at once, but at others these crusts are reproduced for several days or even weeks.

DIAGNOSIS.—The diagnosis is always easy when they first appear, as in no other skin disease do we see such a large elevation of the epidermis. When they have ruptured the diagnosis is more difficult, but it may usually be distinguished from other affections by the brown thin scab, and by the dark red irregular spot when it is removed.

TREATMENT.—The treatment of this affection resolves itself into that which will most quickly restore the general health. In children I have prescribed, R, Syrup of Rhubarb and Potassa, f3jss; Essl. Tincture of Asclepias, f3ss; M., and give

in doses of a teaspoonful every two or three hours. Associated with this I would administer Quinia, Hydrastin and Iron in suitable doses. In some cases the alkaline diuretics in small doses, are very useful, removing as they do the detritus of the system. If there is much derangement of the system, the treatment should be premised with an emetic. Strict attention should be given to the skin, by the use of a daily bath, using an alkaline solution, or salt water, or if there was feeble circulation, a stimulant bath of Mustard or Capsicum. If the bullæ are large, and the surface painful when they rupture, it may be dressed with equal parts of Lime water and Linseed oil, or powdered Elm, Flour, or Hydrastin may be sprinkled on it to absorb the discharges.

RUPIA.

This, like the preceding disease, is almost always associated with a cachectic condition of the system, and enfeebled vitality, and appears most frequently among the poor, destitute and ill-fed, though occasionally when the patients have all the comforts and luxuries of life. Its only relation to the preceding disease, or to this order, is in its first appearance, and it soon loses this resemblance. It is always a chronic affection, lasting from two or three weeks to many months. Three varieties are distinguished, *R. simplex*, *R. prominens*, and *R. escharotica*.

SYMPTOMS.—*Rupia simplex* appears in the form of bullæ, about the size of a dime, round and flattened, and without evidence of inflammation. The contained fluid is at first a limpid serum, but it soon becomes opaque and purulent, and finally concretes, forming thick flat crusts, of a brownish color. These fall off in a few days, leaving a superficial ulcer of the skin, which soon cicatrizes, but a livid-red color remains for some time afterwards.

Rupia prominens makes its appearance in a similar manner, but the bullæ are frequently larger, and the ulceration deeper, and the scales thicker. Usually the skin is reddened, and sometimes there is a burning sensation and pain. The scab seems to grow, in many cases, by continued additions at the base, and becomes one-fourth or even half an inch in thickness, and conical, and resembles to some extent, a snail's shell. When the scab is removed, a new one frequently takes its place, and they may be thus re-formed for months. In some

eases the ulcer is healed with difficulty, the edges being livid and tumified, the center pale, and bleeding on slight pressure.

Rupia escharotica occurs most frequently in children up to two years of age. It commences with the appearance of slightly prominent livid patches, upon which irregular and flattened bullæ are soon formed; when the bullæ break, ulcerated surfaces are left which secrete a disagreeable unhealthy pus. "The infant suffers from acute pain, much fever and insomnolency. When the disease assumes an intense form, death may ensue in one or two weeks. When it does terminate favorably, the ulcerations are very long in healing."—(Cazenave.)

DIAGNOSIS.—*Rupia* is diagnosed with ease, in most cases, by the prominent, conical, brown scabs, those of pemphigus being flat. Ecthyma resembles it most in some cases, and it will be difficult to distinguish between them in its later stages, but the hard and inflamed base, irregular scabs, and superficial excoriations, are usually sufficiently diagnostic.

TREATMENT.—The treatment in this disease, as in the preceding, should be strictly tonic, arrest of the skin disease depending to a great extent upon the restoration of the general health. I have obtained the best results from the administration of the Compound Tincture of *Corydalis*, with Citrate of Iron, and small doses of Quinia and Hydrastin. If there is much derangement of the stomach, we frequently derive benefit from an emetic, and in many cases, excretion needs to be stimulated with small doses of the alkaline diuretics. Associated with these means, the patient should have a daily bath of salt and water, or in some cases of a decoction of *Cornus* or *Hydrastis*. The diet should be nutritious, and exercise should be taken in the open air.

When the local affection is very persistent, we may dress the ulcer with three parts of Glycerin, and one of Tincture of Muriate of Iron; or with the mild Zinc Ointment, Black Salve, or an ointment made of the inner bark of the Elder. Sometimes a decoction of equal parts of *Cornus*, *Alnus* and *Rumex*, answers an excellent purpose, or the tinctures of the same agents may be used. When the ulcers are very persistent they may be cauterized with a saturated solution of Chloride of Zinc, or a paste made with this and *Hydrastis*; after the slough is cast off, the part usually heals kindly with any simple dressing.

ORDER IV.—PUSTULÆ.

This order is distinguished by the formation of small elevations containing pus, and hence termed pustules. They are almost invariably situated on an inflamed base, which usually precedes the eruption, though in some cases the inflammation comes on after the appearance of the eruption, and is more or less diffused. The diseases included under this order are both acute and chronic, two of them, *variola* and *vaccinia*, heretofore described, being eminently contagious, and one, *porrigo*, being propagated by contact. The others seem to depend upon some unknown internal cause.

ECTHYMA.

Ecthyma may be divided into the two forms, acute and chronic, the first occurring most frequently in children and young persons, the second in the adult, though sometimes in children.

SYMPTOMS.—In the acute form it is usually preceded by lassitude and indisposition, and its appearance is frequently marked with slight chills and febrile action. It makes its appearance in the shape of red, circumscribed, inflamed spots, which soon suppurate at their apices. In some cases the eruption is attended with pain, the inflammation being quite severe, but in others it is simply a sense of stiffness. Some of the pustules terminate by resolution, whilst others are succeeded by a thick, adherent scab, which in falling off, leaves a deep red mark, and in some cases a cicatrix. It usually lasts for one or two weeks.

In *chronic ecthyma* there is a successive appearance of the eruption, sometimes for months, the general health being much depressed. It may present the same character as that just described, or it may become confluent in large suppurating surfaces. A variety termed *ecthyma cachecticum*, occurs in old persons and those who have broken their systems down by intemperance. "The skin is inflamed and more swollen than in the common forms of the disease. It assumes a deepened color, and in about six or eight days the cuticle is raised over the pustule, is blackish, and infiltrated with blood. It soon bursts and forms a thick, dark scab, raised at the center; the edges are hard, callous, and more or

less inflamed. The scabs are very adherent, and do not become detached for several weeks, sometimes for months. If they fall accidentally, an unhealthy ulceration ensues, and the scab is with difficulty removed. Sometimes febrile symptoms precede or accompany the eruption, but they generally disappear with the disease.”—(Cazenave.)

DIAGNOSIS.—Ecthyma is usually recognized with ease by the hard and inflamed base, suppuration commencing on the surface, and not deep as in furunculi, aene, and sycosis, which are most frequently mistaken for it, but in these the base is hard, not inflamed, and the pustules are small and slowly developed.

TREATMENT.—In the acute form of the disease, we would give mild laxatives, the special sedatives if there was fever, and a solution of Acetate of Potassa in full doses. The warm bath is sometimes useful, and may be frequently repeated. In the chronic form of the disease I use the alkaline diuretics associated with tonics, and sometimes the vegetable alteratives, as the Compound Tincture of Corydalis, or an infusion of equal parts of Alnus and Rumex. If there is much inflammation and pain, emollient applications will prove beneficial. Glycerin may be used as heretofore recommended, and the mild Zinc and Mayer’s Ointment. Occasionally the Tincture of Muriate of Iron forms the best local application, and in some, when isolated spots are very persistent, we may fill them with dry Sesqui-carbonate of Potash, or wash them out well with a saturated solution of the same.

IMPETIGO.

Impetigo has been divided into several varieties, but it will only be necessary to notice three of them: *I. figurata*, *I. larvalis*, and *I. capitis*. They are all characterized by the development of groups of pustules which rupturing give rise to the formation of thick, yellowish scales.

Impetigo figurata appears most frequently upon the face, though it may attack any part of the body, in young persons; at first as red, slightly raised patches, upon which soon appear numerous pustules, scarcely raised above the skin, and nearly confluent. The eruption is attended with heat and itching, which is increased when the pustules rupture, about the second or third day. The fluid is abundant, and soon dries, forming thick, yellow incrustations which continue for one or

two weeks, sometimes increasing in thickness, and when thrown off, a red, tender surface remains for a considerable time.

Impetigo larvalis usually appears upon the face as an eruption of numerous small pustules of a light yellow color, situated on a red surface. In a day or two they break, giving rise to an ichorous discharge which forms yellow or greenish, rough, laminated scabs. The eruption extending by new eruptions of pustules, it may pass over almost the entire face, or extend to other parts of the body. It is attended with considerable itching, and a sensation of burning and smarting when the scabs are removed. Frequently, we find the scabs reproduced if prematurely removed, and the surface remains red for sometime after it disappears. "In other cases the pustules are larger, and are developed behind the ears, round the mouth, upon the chin, etc., terminating in thick, yellowish-green crusts. In some instances the mouth is surrounded with large and thick, yellowish incrustations, which are of a deep brown color in some parts where the fluid is mixed with blood. The movements of the lips are exceedingly painful in these cases. In other instances, again, these large incrustations form only behind the ears. When the disease begins to decline, the exudation gradually diminishes, the scabs are not formed so frequently, they become thin and white, their bases are paler, and they are soon succeeded by slight desquamation, which is not long in disappearing."

Impetigo capitis is the severest form of the disease, and somewhat resembles *tinea capitis*, especially when severe. It may be confined to a small portion of the scalp, or involve the entire surface. It comes out in closely-set pustules, which rupturing, throw out a thick, viscid fluid, which mats the hair together, forming irregular brownish-yellow scabs. When the head is not properly cleansed, the hair becomes saturated with the secretion, and gives rise to a most disgusting smell, and occasionally lice accumulate, and greatly aggravate the pruritis and suffering. Occasionally the irritation of the scalp becomes so severe that small subcutaneous abscesses form and require opening. If the scabs are carefully softened and removed, the surface is seen to be but slightly reddened, but from a vast number of pores a nauseous, viscid fluid is exuded.

DIAGNOSIS.—*Impetigo figurata* and *larvalis* are distinguished

by their small, yellow pustules, thick, rough, yellowish-green scabs; from *porrigo* or *tinea favosa*, it is distinguished by the pustules of the latter being imbedded in the epidermis, and terminating in umbilicated scabs.

TREATMENT.—In all the varieties of *impetigo*, I have been in the habit of prescribing the Compound Tincture of *Corydalis*, with full doses of Acetate or Citrate of Potassa. Nothing, so far as my experience extends, exerts so marked an influence upon the disease. Other internal treatment may be indicated by the condition of the patient, but will have to be adapted to each individual case. In all cases the general alkaline bath is an important measure, and its proper employment should be insisted on. As a local application, I have found much benefit from the use of a lotion of, \mathcal{R} , Glycerin, $\mathfrak{z}\text{ij}$; Oxide of Zinc, gr. xx; Morphia Sulphas, gr. v; M., and apply freely. An ointment made by sinuering the inner bark of the common Elder in fresh Lard or Butter, is one of the best local applications that can be used. Or we may employ a decoction of equal parts of *Cornus*, *Alnus* and *Rumex*; or, if there is much irritation of the skin, we may use a poultice of a decoction of *Cornus* and Wheat-bran. In some cases emollient poultices will have to be continued for some time before other means can be used. In the more protracted cases, the Sulphur ointments, named under the head of scabies, may be used with good effect, though they frequently are of advantage in the earlier stages.

In *impetigo capitis*, emollient applications should be used to soften the scales and remove irritation, and the head should be thoroughly cleansed. The local applications above named may then be used, or we may employ a decoction of *Phytolacca* or *Cornus*, or the mild Zinc Ointment. In all cases the hair should be cut close, and cleanliness strictly observed. The Sulphur ointments may be used in this case with advantage, and, should they not succeed, we may use the Oxalic Acid and Creosote wash, named under the head of *tinea capitis*.

ACNE.

Acne occurs most frequently in persons between the age of puberty and thirty-five, appearing on the back and face, and sometimes the neck and shoulders. The causes of this affection are very obscure, and in many cases it does not seem to

be connected with any derangement of the general health. It has been divided into three varieties: *A. simplex*, *A. indurata*, and *A. rosacea*, which differ materially in their symptoms and progress.

Acne simplex is confined almost entirely to the young, appearing about the age of puberty, in the form of small red indurations, which soon become pustular, and are surrounded by a red areola. They are rarely painful, except occasionally on the face or forehead, and disappear with the formation of a thin scab, which on being removed leaves a slightly elevated red spot; six or eight days is usually occupied in their eruption and disappearance, but successive crops may appear for months or years.

In *acne indurata* the induration is much more marked, and in severe cases forms livid, red, indurated tumors, which are painful when pressed upon. Suppuration proceeds slowly, and small scabs are formed on the surface; in some cases the cellular tissue is involved and the induration remains for some weeks.

Acne rosacea is most generally met with after middle age, and most frequently in those who have impaired their constitution by intemperance, or dissipated habits. It makes its appearance in the form of irregular, deep red blotches, most frequently on the cheeks, with slight indurations at certain points, upon which pustules make their appearance. In some persons the nose is more especially affected, the tip becoming bluish-red upon any indiscretion in diet, and at last permanently so, giving the face a very peculiar and unpleasant appearance. Small pustules form at different points, but do not suppurate freely.

At last "the veins become varicose and form bluish irregular lines, which contrasts with the intense red or violet color of the diseased surfaces." In some cases it passes to the cheeks, lips, or chin, giving the countenance a very disagreeable appearance.

DIAGNOSIS.—The slow development of the pustules, and their situation on a hard base, is usually sufficiently diagnostic; whilst in cethyma, which most closely resembles it, the pustules are larger, never accompanied with chronic induration, and form thick, elevated scales.

TREATMENT—*Acne simplex* requires but little treatment. If the patient is very desirous of getting rid of the unpleas-

ant appearance we would give an occasional cathartic of Bi-tartrate of Potassa, and a very small portion of Podophyllin, and a solution of Acetate or Citrate of Potassa. The entire surface may be bathed every day with cold water, and well rubbed with a coarse towel. For the face I usually recommend the Glycerin lotion.

In *acne indurata* we would keep the bowels open with the Podophyllin Pill, and give some vegetable alterative, as the Compound Syrup of Stillingia or Compound Tincture of Corydalis, with Iodide of Potassium. I have obtained more benefit from a solution of Acetate of Potassa in some of these cases, than from any other remedy, and am inclined to place great reliance on its alterative powers. As a local application nothing will prove better than frictions with an ointment of Iodide of Sulphur, fifteen to thirty grains to the ounce of Lard. The common Black Salve of the Dispensatory is an excellent application, as is the Mayer's Ointment.

In *acne rosacea* the best we can do is to recommend an avoidance of excesses of all kinds, that the food should be plain and light, and a simple Glycerin lotion applied to the part to relieve irritation. In some cases continued attention to these points, with the use of the general tepid bath, will result in a permanent cure, or at least the disease will be much mitigated.

MENTAGRA.

Mentagra, *sycosis* or *barber's-itch*, has its seat in the sebaceous follicles which are attached to the bulbs of the beard, and may appear on every part of the face where the hair grows, though most frequent on the chin and lips. It comes out in the form of small, red indurations at the root of the hair, which soon suppurates, and at length bursts, forming slight brown crusts through which the hair passes. When the eruption is extensive, both the skin and cellular tissue become inflamed and indurated, giving rise to considerable heat, stiffness and pain. The entire chin or lip will be occasionally found so involved that it seems to be a mass of disease, nearly every hair having its suppurating pustule. It is essentially chronic in its character, and may last for months or years, and is sometimes very intractable.

DIAGNOSIS.—The induration at the root of the hair, and the manifest implication of the hair bulb and follicles, the hair

seeming to rise out of the center of the pustule, is the most characteristic feature of the disease. In *ecthyma* the base is more inflamed, and the pustules larger, and in *impetigo* the pustules are in groups, while in this affection they are distinct and acuminate.

TREATMENT.—The most successful plan of treatment that I have seen tried is, the internal administration of Tar and Sulphuret of Potassa, the bowels being kept regular, and the local application of the Iodide of Sulphur ointment. The beard should be cut with scissors, and no soap should be applied to the face on any account, but it should be kept clean by using a lotion of equal parts of Glycerin and Rose-water. A solution of Sulphate of Zinc has been employed in some cases, as has the Oxalic Acid; the first may be used from ten grains to the ounce of water, to a saturated solution, and the second, from ten to twenty grains to the ounce of water. In one case of inveterate sycosis, the persistent use of a decoction of equal parts of *Alnus* and *Rumex*, taken internally and applied locally, with the use of Glycerin, effected a permanent cure. When other means fail, if the disease is circumscribed, we may effect a cure by extracting the hairs with a pair of forceps. It is a painful operation, and a slow one, but very certain.

PORRIGO.

Porriga or *tinea* is a disease of the scalp, and is generally known by the name of *scald head*. It is undoubtedly contagious, and is propagated from one to another by contact; hence, the necessity for care in the use of articles of clothing, combs, brushes, towels, etc. Two varieties are distinguished, *P. favosa*, or *tinea capitis*, and *P. scutulata*, or *tinea anularis*,

Porriga favosa commences with an eruption of minute, round, yellow pustules, which seem to be imbedded in the skin. At first they are distinct and situate on a hard base, but as the disease progresses they become confluent, the entire scalp being inflamed or indurated. In a short time after their formation the yellowish fluid begins to concrete, and when they are distinct forms a scab, with a marked depression in the center, but when close together, they form one large scab. If this is allowed to remain, it becomes thick, whitish and brittle; if removed, slight erosions are seen under it, and it is not re-formed, except by the appearance of a new crop of pustules.

"This affection is never accompanied with febrile symptoms, but a troublesome and annoying itching is often present during its progress, which is aggravated by want of cleanliness. A number of lice are often seen under the scabs, causing the patients to scratch themselves, and by this means increase the inflammation. In these cases there is a strong, disagreeable odor, similar to that of cat's urine given off from the head. After the head is cleansed from the scabs the odor becomes sickening. The excoariations on the surface, which often reach to the hair bulbs, and thus produce baldness, are not covered with the regular cup-shaped favus pustules, but a reddish and fœtid sanies oozes out, which concretes into irregular-shaped scabs. Fresh pustules, however, soon appear which gives rise to fresh favus scabs. Small subcutaneous abscesses may sometimes appear, accompanied with sympathetic engorgement of the lymphatic glands of the neck. It has been remarked that the growth of those persons who have been affected with porrigo is often arrested, and the development of the mental as well as the physical powers, is slow and imperfect. The duration of the disease is very variable and uncertain; and the hair when reproduced, is rarely the same as the original either in color or consistence."—(Cazenave.)

Porrigo scutulata commences with the appearance of red circular patches, upon which small yellow pustules are soon developed. Each pustule has a hair passing through it, and have the same cupped appearance as in the preceding variety; and they appear more frequently upon the circumference of the spot than at its center. The scabs increase in thickness for some time, and when removed, a large furfuraceous patch with an uneven surface is left, from which the hair frequently falls off. It spreads by spontaneous development, or by inoculation of other parts by scratching; marked, and sometimes intense itching attending the eruption. Like the preceding affection, its duration is variable, but if allowed to run its course, it would probably continue for years, resulting in permanent baldness.

DIAGNOSIS.—The presence of the small, rounded, yellow pustule, depressed in its center, is the diagnostic feature of both forms. *Porrigo scutulata* is determined by the appearance of the eruption in circular patches, though when these are numerous, they are so crowded together as to cover the

entire surface, and the distinction then between this and porigo favosa can not be made out.

TREATMENT.—Cleanliness is of major importance in this affection, and to secure it we would have the hair cut close, and the head frequently washed with Castile soap and water. It may be necessary at first to soften the incrustations by continuous emollient applications, or in some cases with poultices, using soap and water freely in the meantime. Having thus exposed the scalp, we would apply, R, Oxalic Acid, gr. x to gr. xx; Creosote, gr. x; Aqua, ʒij; M., and follow it in half an hour with free inunction of mild Zinc ointment. The ointment of Iodide of Sulphur is a very efficient remedy, and when used should be gently rubbed over the parts night and morning, the scalp being kept perfectly clean by the use of soap and water. It is not necessary to name other topical applications, as these, if properly used, will be sufficient in all cases.

As regards internal remedies, we will find it necessary to give the vegetable alteratives heretofore named, associated with some preparation of Potassa, as the Iodide, Acetate, Carbonate, etc. Usually, the bitter tonics and Iron will be required to some extent, and occasionally Cod-liver Oil will prove beneficial.

ORDER V.—PAPULÆ.

This order is characterized by small, firm, solid elevations of the skin, always attended with more or less itching, and never contain pus or serum, though occasionally from irritation these surfaces become ulcerated and covered with incrustations. They are developed without any appreciable cause, are rarely attended with febrile symptoms, and are not contagious. They are most generally chronic, but sometimes acute. Two diseases are included under this order—lichen and prurigo.

LICHEN.

Lichen appears as small, hard elevations, but slightly red, or of the color of the skin, and attended with severe pruritus. We may distinguish three forms: *L. simplex*, *L. agrius*, *L. urticatus*.

Lichen simplex comes out in the form of small and aggre-

gated papulæ, being attended with severe itching, and sometimes burning. It most frequently appears on the face and arms, and the neck and breast, though it may extend to all parts of the body. They remain stationary for three or four days, when the redness gradually declines, there is slight furfuraceous desquamation, and the disease terminates in seven or eight days, unless there is a new eruption. In many cases, it continues for weeks or months by the appearance of successive crops of papulæ.

Lichen urticatus usually appears suddenly in the form of large and numerous papulæ, attended with a burning, distressing pruritus. It appears most frequently on the face, neck, and extremities, and is irregular and transitory, subsiding and reappearing with great rapidity. "The papulæ are clustered, and they are either white or surrounded by a faint-red areola: sometimes they are prominent, and considerably inflamed, and at first bear considerable resemblance to flea bites." When scratched or otherwise irritated, they frequently bleed, and dark scabs form on their surface. The eruption may disappear with one crop of papulæ, but it is occasionally very obstinate, lasting for months, by their successive reproduction.

Lichen agrius may appear spontaneously, or it may succeed lichen simplex. When it appears spontaneously, the papulæ are very small, red, acuminate, inflamed and developed on an erythematous surface of limited extent, which is generally attended with heat and painful tension. Instead of subsiding on the fourth or fifth day, they continue increasing: slight ulcerations form on their apices, whence issues a sero-purulent fluid, which concretes and forms yellowish, prominent crusts, soft and slightly adherent. These incrustations fall off, and are then replaced by thin, scaly scabs. Sometimes the redness diminishes, the inflammation disappears, slight desquamation ensues, and the disease terminates about the twelfth or fifteenth day. But frequently the discharge continues, and new crusts are formed, by which the disease is prolonged considerably. The itching which accompanies it is often so intense that the patient seeks the hardest substances to rub himself with, and thus invariably aggravates the pruritus. It may continue in this manner for several weeks, or it may pass into the chronic state, when the scaly incrustations disappear, and are succeeded by slight exfoliation, and the skin is often

considerably hypertrophied. This form may last for months. (Cazenave.)

A peculiar form of disease has prevailed extensively in the Western country, for the last three years, known as *Illinois itch*, *soldiers' itch*, etc., presenting many of the characteristics above named. Its symptoms seem so variable, that it is difficult to classify it, as it sometimes resembles eczema, and at others impetigo, and in others, again, it presents to some extent the characteristics of all three. It appears most generally upon the wrists and hands first, and then extends to various parts of the body, and is remarkably persistent and annoying.

DIAGNOSIS.—The diagnosis of lichen is very difficult, as it may be mistaken for eczema, porrigo, scabies, or impetigo, but it may usually be determined by the presence of some of the characteristic papulæ.

TREATMENT.—In lichen simplex we usually direct a mild purgative, followed by an alkaline diuretic, and the frequent use of the alkaline bath. In lichen urticatus I use internally a decoction of *Asclepias* and *Scrophularia*, with an alkaline diuretic, and the free use of the bath of Bi-carbonate of Potassa and water, followed by a decoction of *Cornus*, *Alnus* and *Rumex*. The Glycerin lotion, heretofore named, answers a good purpose, as does also a solution of Chlorate of Potassa, ʒj, to Water, Oj.

Lichen agrius is more difficult to manage, and no remedy seems to answer in all cases. In some, I have had very good success with Glycerin and Tincture of Muriate of Iron, in the proportion of three parts of the first to one of the last, given internally in teaspoonful doses four times a day, and applied to the affected parts three times a day. A lotion of Muriate of Ammonia has been frequently employed, composed of, ℞, Hydrochlorate of Ammonia, ʒj; Vinegar, ʒiv; Water, Oj; and applied freely to the affected parts. In some cases the internal administration of the Compound Tincture of *Corydalis*, with Iodide of Potassium, and a wash of a decoction of equal parts of *Cornus*, *Alnus* and *Rumex*, has answered a good purpose. In other cases a lotion of, ℞, Glycerin, ʒij; Oxide of Zinc, ʒss; Morphia, gr. v; Rose water, ʒiv; has answered an excellent purpose, as has the ointment of Elder and the mild Zinc Ointment. In other cases, good results will be obtained by the internal use of Sulphur, and its local employment as a bath, wash, or ointment.

PRURIGO.

Several varieties of this disease are described, but many of them are named, not from any prominent difference of symptoms, but more on account of their location. The disease is characterized by the appearance of papulæ, usually larger than those of lichen, and without discoloration of the skin which are attended by very severe pruritus, and sometimes burning. Three varieties may be named, *P. mitis*, *P. formicans*, *P. senilis*.

Prurigo mitis is the mildest form of the disease, and is usually acute. The papulæ are slightly prominent, but very small, and are accompanied with intense itching. In *prurigo formicans* the papulæ are much larger, and flattened, and distinct, and accompanied with an intolerable pruritus, which increases at night, and by the warmth of the bed. If not irritated by scratching, they frequently disappear in the course of one or two weeks, but frequently the skin is torn in the efforts for relief, and the part bleeds, and a dark thin scab is formed on its surface. It may continue for a considerable time by continued development of the eruption. In old people, or in weakly children, the papulæ are frequently large and prominent, and the skin becomes thickened and inflamed; vesicles, pustules and boils form, and, being opened by scratching, give rise to unpleasant excoriations and superficial ulcers, and a most intense burning and itching. It may thus last for months, or even years. Prurigo may attack any part of the body, but is most severe when it attacks the genital organs, or is situate around the anus.

DIAGNOSIS.—Prurigo may be distinguished from *lichen* by its larger papulæ, and the dark incrustations which are sometimes formed on them; from *scabies* by the acuminate vesicles of the latter, and their rose-colored base. It may be associated with lichen, scabies, eczema, impetigo and ecthyma, and in such cases the diagnosis will of course be difficult.

TREATMENT.—In the milder forms of the disease, the removal of any internal irritation, and soothing local applications are all that is required. Frequently it is desirable to keep the bowels open with a saline purgative, and give an alkaline diuretic, with some gentle diaphoretic. As a local application, the Glycerin lotion will answer a very good purpose; or we may use it with Chloroform, adding ten or fifteen drops

of it, to each ounce of the lotion. A solution of Borax answers a good purpose, as R, Borax, ʒij; Morphia, gr. v; Rose-water, fʒvj. A decoction of Hydrastis or Cornus with Borax and Morphia, are frequently beneficial.

In the chronic forms of the disease, it is necessary to administer the bitter tonics and Iron, accompanying them with a vegetable alterative, and alkaline diuretic. I have used for this purpose the pill of Quinia, Hydrastin, Podophyllin and Nux Vomica, heretofore spoken of, with R, Essl. Tinctures of Collinsonia, Corydalis and Cornus, āā, ʒj; Syrup of Prunus, ʒiij; M., and give in teaspoonful doses four times a day. This should be associated with Tincture of Muriate of Iron, in the usual doses, giving one for two or three days, and then the other.

ORDER VI.—SQUAMÆ.

This form of skin disease is characterized by the formation of scales upon a thickened and reddened portion of the skin. In some cases they seem to result from change in the function of the epidermis, and at others to be formed by the desiccation of the secretions of the part. They are always chronic, and usually very persistent. The causes giving rise to them are unknown, and they are not confined to any class of society, age or sex. Four diseases are grouped under this order: lepra, psoriasis, pityriasis, and ichthyosis, the first and the last being of very rare occurrence.

LEPRA.

Lepra most usually appears in the neighborhood of the joints, in the form of small red shining spots, a little elevated above the skin. In a short time they lose their smooth appearance, and become covered with thin scales which are constantly falling off, and being renewed. They increase in size, maintaining their circular form, until they are two or three inches in diameter, and the skin becoming thick and hard, movement of the joint is frequently impeded. The disease may extend to any part of the body, and in some cases will cover a considerable portion of the surface. In rare cases ulcerations occur, the result being the formation of unpleasant cicatrices. It may subside of itself, gradually disappearing in the course of two or three months, or it may disappear and return quickly again, but in many cases it persists for years.

DIAGNOSIS.—It is usually diagnosed with ease, the appearance of the eruption in small circular patches, at first near the joints, and its gradual increase in size, being regular in its outline, with the scaly secretion, is sufficiently distinctive.

TREATMENT.—A more extended experience is necessary in order to test the value of our remedies, but in the few cases that have come under my notice, and have been reported to me, they have been successful. We employ a decoction of *Celastus*, *Rumex*, and *Scrophularia* freely as an internal remedy, associated with the Hydrochlorate of Ammonia, and Chlorate of Potassa, alternated with the Tincture of Muriate of Iron. The same remedies may be used in the form of a tincture or syrup, but it has seemed to me that a better influence was obtained from a decoction. Quinia and Hydrastin may be used at the same time, providing there seems to be a necessity for their administration.

If the surface seems harsh, as is sometimes the case, we would use the general vapor bath, followed by the cold douche, and brisk friction, or the tepid or warm water sheet pack, followed by the douche, and friction as before. These means should be repeated daily in some cases, and once or twice a week in milder ones, and should be continued until the surface becomes soft and natural. To the affected part we may apply, \mathcal{R} , Glycerin, 3ij; Benzoic Acid, 3ij; Oxide of Zinc, 3ss; Morphia, gr. v.; M., and apply freely; or, \mathcal{R} , Tincture of Muriate of Iron, 3j; Glycerin, 3ij; or the Mayer's Ointment, or that made from the bark of the Elder. In some cases benefit will be obtained from the use of a decoction of equal parts of *Cornus* and *Rumex*, in addition to the means named.

PITYRIASIS.

Pityriasis is a chronic inflammation of the skin, attended with abundant furfuraceous desquamation. Its most frequent seat is the scalp, or parts covered with hair, and when the scales are removed, the part is seen to be slightly reddened in spots.

Pityriasis capitis is most frequently seen in children, and is attended with but slight itching, and continued exfoliation of the epidermis. It is sometimes very persistent and intractable.

In *pityriasis rubra*, the disease appears in small red spots

which being aggregated form large patches which are usually hard, but sometimes of a normal softness. These patches soon become covered with minute scabs, which are continually being thrown off and reproduced.

Pityriasis versicolor appears in the same manner, but is distinguished by the variegated yellow discoloration of the cuticle.

DIAGNOSIS.—Pityriasis is usually recognized easily, as there is but little structural change of the skin, and continued and abundant furfuraceous desquamation.

TREATMENT.—The treatment will be the same as psoriasis, which see.

PSORIASIS.

Psoriasis is a species of chronic inflammation of the skin, in which in addition to some change of structure, there is a continued formation and exfoliation of whitish scales. The causes of this disease are unknown, though sometimes it seems to be hereditary. Three varieties are named, *P. Guttata*, *P. diffusa*, and *P. inveterata*.

Psoriasis guttata appears in the form of small red patches, irregularly rounded and elevated above the adjacent skin, and though they are almost always aggregated so as to form patches of considerable size, yet there is a distinct division between them, in which the skin retains its usual color. These patches are covered with thin scales, which are easily removed, and rapidly reproduced. It is met with on any part of the body, and is attended with slight itching, which is increased by the warmth of the bed. It occurs most frequently in young adults, and is rare either in childhood or old age.

Psoriasis diffusa occurs in the form of flat, angular, irregular and larger patches than the foregoing. They are at first red, of a papular form, and distinct; they speedily unite, and form continuous surfaces, covered with thick, whitish, and pretty adherent scaly incrustations. Although it may appear on every part of the body, the limbs are much more frequently affected than any other part. It is by no means uncommon to see one continuous patch covering the whole of the anterior surface of the leg, or the posterior aspect of the forearm. The elbows and knees are constantly affected, and even when it has disappeared from every other part of the body, it will remain fixed in these regions, from which it will be difficult to

remove it. It is generally preceded by slight constitutional disturbance, together with a troublesome, severe itching, which, however, soon subsides, and disappears when the eruption is developed.

In some cases the patches are not inflamed, and the patient merely complains of slight formication; but in a few rare instances there is considerable inflammation present; the patches are prominent, and the scales thick, and painful fissures and chaps are established, which annoy the patient considerably. It generally attacks adults; nevertheless it sometimes occurs in young children, and its progress in these cases is often remarkably rapid. It is always a severe and intractable disease, lasting for months and even years.

"*Psoriasis inveterata* is the same affection as the foregoing, but of a more severe form. It occurs most frequently in aged persons, and in broken-down constitutions, and often attains a high degree of intensity. The skin becomes thick, hard and hypertrophied; it is split in different directions, and the scales are no longer of the usual size and thickness, but a sort of furfuraceous desquamation takes place, which fills up the furrows or fissures, and is readily detected. Sometimes, in these cases, the morbid surfaces are entirely deprived of scales, and are red, slightly inflamed, and furrowed in every direction. On pinching up the skin between the fingers, it is found to be deeply altered, and feels rough, hard and uneven. The eruption is sometimes confined to the limbs; in other instances, it spreads over the whole body; and in some rare cases, the patient seems as if encased in a scaly envelope. The slightest movement of the joints produces deep, bleeding and painful fissures. The nails are also affected, and are misshapen, rough and ragged; they split into pieces and are replaced by scaly incrustations."—(Cazenave.)

Psoriasis sometimes appears about the angles of the eyes, and on the lids, giving rise to considerable irritation and swelling. Occasionally it extends to the conjunctivæ, occasioning a most obstinate conjunctivitis; in these cases it is denominated *psoriasis ophthalmica*. At other times it attacks the lips, which become dry and corrugated, fissures of greater or less depth, passing from the margin of the lip outward. It usually extends for half or three-quarters of an inch around the mouth, and in addition to the dryness, hardness and continued desquamation, there is a dusky-red discoloration, which

gives the countenance a very unpleasant appearance; this has been named *psoriasis labialis*; it may attack the prepuce in a similar manner, rendering it hard and rough, and so corrugated that it can not be drawn back from the glans, without very severe pain and bleeding, and in some cases produces permanent phymosis—*psoriasis præputialis*. These varieties are usually very stubborn and difficult to manage, and give the practitioner a great deal of trouble.

Psoriasis palmaris, *grocer's* or *baker's itch*, commences with the appearance of firm red points in the palm of the hand, accompanied with a sensation of itching and burning. These spots are soon covered with whitish scales, which when removed, leave a purplish-red spot.

It generally extends from the circumference until it involves the entire hand, leaving it purple, hard and chapped; so much so at times, that the blood gushes from the hands when using them, or they are so stiff, that they can not be used at all. When it attacks the back of the hands it is termed *psoriasis dorsalis*, and does not differ from the foregoing further than that the patches are larger, harder and drier; extending to the articulations, it gives rise to deep and painful fissures.

DIAGNOSIS.—From the description above given, the reader will have but little difficulty in its diagnosis. The patches are always elevated in the center, whilst in *lepra* the center is depressed, and in *lichen*, we will always be enabled to determine the papulæ.

PROGNOSIS.—*Psoriasis* is a difficult disease to cure, and requires much time and perseverance, yet a large majority of cases will yield to treatment. *Psoriasis inveterata* is the most difficult, and in many cases, it will not yield to remedies.

TREATMENT.—The treatment of this affection is essentially the same as for *lepra*, depending more upon internal remedies than upon local applications. If not very severe, I have had no trouble in its removal with the internal use of the Compound Tincture of Corydalis and Bromide of Potassa, given in full doses, and the local application of a decoction of equal parts of Cornus, Alnus and Rumex, or the tinctures of the same diluted, followed by a lotion of Glycerin, as heretofore named. In the severer cases, I use the remedies in decoction, giving them freely, say combinations of Rumex, Alnus, Serophularia, Stillingia, Corydalis, etc., alternating them so as to keep up their effect. An occasional emetic is frequently

useful, as is also a solution of Acetate or Citrate of Potassa, and the bitter tonics must be used to such extent as to keep the digestive organs in good condition. One of the most important means in long-standing cases is the use of the warm wet sheet pack, followed by the cold douche and brisk friction. The Sulphur and Iodine vapor, directed on the diseased part, will occasionally be found useful, though the local means recommended under the head of lepra will usually be sufficient.

ICHTHYOSIS.

Ichthyosis, or the *fish-skin* disease, is not an accidental alteration of the skin, but an organic change in its development. The causes of it are unknown, but it is frequently congenital, or at least there is the commencing change in the skin at birth, which results in ichthyosis. It is a very rare form of disease, and is seldom or never met with in a lifetime's practice. It is characterized by a peculiar dry and harsh appearance of the skin, and the development of hard, dry, imbricated scales, of a dirty red color, unaccompanied by heat, inflammation or any unpleasant sensation. It appears principally on the external aspects of the limbs—round the joints, on the knee and elbow, on the upper part of the back, and on those regions where the skin is naturally thick and coarse. It is most usually general, but is sometimes limited to a particular part, especially where it is accidental, sometimes affecting the arms and legs only. It is generally a congenital disease, and lasts through life. When fully developed, its appearance is so peculiar that it can not be mistaken for any other affection. When congenital, it is incurable, but when accidentally developed, it may be arrested, though it is said to be very intractable. The treatment recommended for lepra and psoriasis may be used in these cases.

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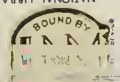
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